

M/049/029

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DIV. OIL GAS & MINING



Interstate® Brick

a division of PABCO Building Products, LLC

Notice of Intention to Commence Large Mining Operations

Allred Mine

T5S R1W Section 9, Utah County

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FORM MR-LMO
(Revised January 2003)

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FOR DIVISION USE ONLY

File #: M / /

Date Received: _____

DOGM Lead: _____

Permit Fee \$ _____ Ck # _____

STATE OF UTAH
DEPARTMENT OF NATURAL RESOURCES
DIVISION OF OIL, GAS AND MINING
1594 West North Temple Suite 1210
Box 145801
Salt Lake City, Utah 84114-5801
Telephone: (801) 538-5291 Fax: (801) 359-3940

NOTICE OF INTENTION TO COMMENCE LARGE MINING OPERATIONS

The informational requirements in this form are based on provisions of the Mined Land Reclamation Act, Title 40-8, Utah Code Annotated 1953, General Rules and Rules of Practice and Procedures.

This form applies only to mining operations which disturb or will disturb more than five acres at any given time.

"MINING OPERATIONS" means those activities conducted on the surface of the land for the exploration for, development of, or extraction of a mineral deposit, including, but not limited to, surface mining and the surface effects of underground and in situ mining, on-site transportation, concentrating, milling, evaporation, and other primary processing.

"Mining operation" does not include: the extraction of sand, gravel, and rock aggregate; the extraction of oil and gas as defined in Chapter 6, Title 40; the extraction of geothermal steam; smelting or refining operations; off-site operations and transportation; or reconnaissance activities which will not cause significant surface resource disturbance or involve the use of mechanized earth-moving equipment such as bulldozers or backhoes.

PLEASE NOTE: *This form is to be used as a guideline in assembling the information necessary to satisfy the Large Mining Operations Notice of Intention requirements. **You will need extra space to provide a majority of the information requested.** Please provide the information on additional sheets and include cross-referenced page numbers as necessary. The Permittee / Operator may submit this information on an alternate form; however, the same or similar format must be used.*

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I. Rule R647-4-104 - Operator(s), Surface and Mineral Owners

The Permittee / Operator must provide the name, address and telephone number of the individual or company who will be responsible for the proposed operation. If a company is to be listed as the Permittee / Operator, then the name of the corporate officers need to be provided.

1. Mine Name: Allred Mine

2. Name of Permittee/ Operator/ Applicant: Pabco Building Products, LLC dba Interstate Brick Company

Company () Corporation (X) Partnership () Individual ()

A corporation must be registered with the State of Utah, Division of Corporations. Are you currently registered to do business in the State of Utah? **Yes**

Business License # 5286582-0161

Registered Agent (as identified on your business license): CT Corporation Service

Address: 50 W Broadway Ste 800, Salt Lake City, UT 84101

Phone: 801-364-5101 Fax: 801-359-0388

3. Permanent Address: 9780 South, 5200 West, West Jordan, UT 84088

Phone: 801-280-5200 Fax: 801-280-5220

4. Company Representative (or designated operator):

Name: John Hewitt

Title: Assisstant Plant Mgr.

Address: see permanent address above

Phone: 801-280-5230 Fax: 801-280-5321

5. Location of Operation:

County(ies) Utah

S1/2 1/2 of SW 1/4, Section: 9 Township: 5 South Range: 1 West

1/4 of 1/4, Section: Township: Range:

1/4 of 1/4, Section: Township: Range:

The names of the surface and mineral owners for any areas which are to be impacted by mining must be provided to the Division. This list should include all private, state and federal ownership and the owners of lands immediately adjacent to the project areas.

6. Ownership of the land surface (circle all that apply):

Private (Fee), Public Domain (BLM), National Forest (USFS), State of Utah (SITLA) or other:

Name: Two A LLC Address: 5005 South 900 E. Suite 200 Salt Lake City, UT 84117

Name: Address:

Name: Address:

Name: Address:

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7. **Owner(s) of record of the minerals to be mined** (circle all that apply):
Private (Fee), Public Domain (BLM), National Forest (USFS), State of Utah (SITLA) or other:

Name: Two A LLC Address: 5005 South 900 E. Suite 200 Salt Lake City, UT 84117
 Name: _____ Address: _____
 Name: _____ Address: _____
 Name: _____ Address: _____

8. **BLM Lease or Project File Number(s) and/or USFS Assigned Project Number(s):** _____
n/a

Utah State Lease Number(s): _____ n/a

Name of Lessee(s): _____ n/a

9. **Adjacent land owners:**

Name: United States of America. (property East of mine, 20.32 acres. SE4 Sec 9, T5S, R1W).

Address: Division of Property Management.
2370 S. 2300 West Salt Lake City UT 84119

Name: Interpace Industries Incorporated
(property to North of mine, S1/2 Sec 9, T5S, R1W)

Address: P.O. Box 12118 Ogden UT 84412-2118

Name: Utah Power and Light Company (property to S.E. of leased area, E1/2NE1/4 of Sec. 16, T5S, R1W).

Address: 1407 W N Temple. Salt Lake City UT 84110

Have the land, mineral and adjacent land owners been notified in writing?

Yes X No _____

If no, why not? _____

11. **Does the Permittee / Operator have legal right to enter and conduct mining operations on the land covered by this notice?** Yes X No _____

II. Rule R647-4-105 - Maps, Drawings & Photographs

105.1 - Base Map

A complete and correct topographic base map (or maps) with appropriate contour intervals must be submitted with this notice showing all of the items on the following checklist. The scale should be approximately 1 inch = 2,000 feet (preferably a USGS 7.5 minute series or equivalent topographic map where available). The map(s) must show the location of lands to

be affected in sufficient detail to allow measurement of the proposed area of surface disturbance.

Base Map Checklist

Please check off each section to verify these features are included on the map(s) or explain why it is not applicable. Please add the map identification name or number which shows these features.

Check

✓

- (a) Property boundaries of surface ownership of all lands which are to be affected by the mining operations;

Map ID
*See legend,
top right on
Base Map*

105.1 (a): Mine Property leased from Allred Family, 120 acres

✓

- (b) Perennial, intermittent, or ephemeral streams **-105.1 (b) 1**
springs and other bodies of water **-none**
roads **-105.1 (b) 2**
buildings **-none**
landing strips **-none**
electrical transmission lines **-105.1 (b) 3**
water wells **-none**
oil and gas pipelines **-105.1 (b) 4**
existing wells or boreholes **-none**
or other existing surface or subsurface facilities within 500 feet of the proposed mining operations; **-none**

✓

- (c) Proposed route of access to the mining operations from nearest publicly maintained highway (Map scale appropriate to show access); **-105.1 (c)**

✓

- (d) Known areas which have been previously impacted by mining or exploration activities within the proposed land affected;

105.1(d) 1: Area impacted covered under previous small mine permit
105.1(d) 2: Previously mined area, prior to small mine permit, pre law.

✓

- (e) Areas proposed to be disturbed or reclaimed over the life of the project or other suitable time period.

105.1(e): Area encompassing the project area (Reclamation of Haul road

shown on Reclamation treatments map)

105.2 - Surface Facilities Map

Surface Facilities Map Checklist

Surface facilities maps should be provided at a scale of not less than 1" = 500'.

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Please check off each section to verify these features are included on the map(s) or explain why it is not applicable. Please add the map identification name or number which shows these features.

Check

Map ID

√

- (a) Proposed surface facilities, including but not limited to:
 buildings - **none**
 stationary mining/processing equipment - **none**
 roads - **105.2 (a) 1: access to the highway.**

 utilities - **none**
 power lines - **none**
 proposed drainage control structures - **105.2 (a) 2, a low earth berm to contain winter water.**
 location of topsoil storage areas - **105.2 (a) 3**
 overburden/waste dumps - **105.2 (a) 4**
 tailings or processed waste facilities - **none**
 disposal areas for overburden - **none**
 solid and liquid wastes, and wastewater discharge treatment and containment facilities; - **none**

√

- (b) A border clearly outlining the extent of the surface area proposed to be affected by mining operations, and the number of acres proposed to be affected; - **105.2 (b) 1 15.6 acres (same as item 105.1(e) on Base map.)**

105.2 (b) 2 - Mined Shale stockpile location

105.2 (b) 3 - Area of actual mining, or new overburden removal, 4.3 acres or 188,565 square feet,

105.1 (a) - Mine Property leased from Allred Family, 120 acres -

√

- (c) The location of known test borings, pits, or core holes.

None exist

105.3 - Additional MapsReclamation Treatments Map Checklist

Please check off each section to verify these features are included on the map(s) or explain why it is not applicable. Please add the map identification name or number which shows these features.

Check

Map ID

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- ✓ (a) Areas of the site to receive various reclamation treatments shaded, cross hatched or color coded to identify which reclamation treatments will be applied. Areas would include:
- buildings – **none exist**
 - stationary mining/processing equipment – **none exist**
 - roads – **105.3 (a) 1 – .4 miles of road leading to the mine to be ripped, spread with bio-solids, and reseeded, 1.1 acres.**
 - 105.3 (a) 2 - earth berm to block access into reclaimed mine area and for public safety.**
 - utilities – **none exist**
 - proposed drainage improvements or reconstruction and sediment control structures – **105.3 (a) 3 (same as 105.2 (a) 2 on Reclamation treatments map). An approximate 3' or less berm to contain excess water that may accumulate in the wet seasons. Will be covered in biosolids, ripped and seeded.**
 - topsoil storage areas
 - 105.3 (a) 4: top-soil storage area for new mining (same as area 105 (b) 3 on Surface Facilities map).**
 - 105.3(a) 5 non top-soil overburden material from new mining (105.3 (b) 3 on Surface Facilities map) to be spread first over entire area prior to topsoil being spread.**
 - 105.3 (a) 6: overburden material prior to small mine permit to be spread over area prior to topsoil being spread.**
 - 105 (a) 7: overburden material associated with small mine permit and prior.**
 - tailings or processed waste facilities – **none**
 - disposal areas for overburden – **none**
 - solid and liquid wastes – **none**
 - ponds, and wastewater discharge, treatment and containment facilities. – **none**

105.3.1 & 2

Reclamation treatments may include ripping, regrading, replacing soil, fertilizing, mulching, broadcast seeding, drill seeding, and hydroseeding:

- ✓ (b) A border clearly outlining the extent of the area to be reclaimed after mining, the number of acres disturbed, and the number of acres proposed for reclamation: - **105.3 (b): mine area to be reclaimed after mining – 14.5 acres (+1.1 acres of road = total 15.6 acres).**

- ✓ (c) Areas disturbed by this operation which are included in a request for a variance from the reclamation standards:

See 105 (d) slopes to remain greater than 3H:1V.

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- ✓ (d) Highwalls which are proposed to remain steeper than 45 degrees and slopes which are proposed to remain steeper than 3 horizontal : 1 vertical.

105.3 (d) – slopes to remain greater than 45 degrees and 3H:1V.

Note: Areas included in sections c & d will need to be referenced in the variance request section. Please shade or color code these areas on this map.

Additional maps and cross sections may be required in accordance with Rule R647-4-105.3. Design drawings and typical cross-sections for each tailings pond, sediment pond, or other major drainage control structures must also be included.

Included in Appendix 2, Mine cross-section drawings & Reclamation Cost Estimate: Map

- 105.3.2 plan view of location of transects used for making cross-section drawings**
- 105.3.3 cross-section of mine before mining**
- 105.3.4 cross-section of mine at present**
- 105.3.5 cross-section of mine at end of mining**
- 105.3.6 cross-section of mine at reclamation**
- 105.3.7 calculation of reclamation grading and seeding costs**

Attached at end of this form:

- 105.3.8 Photograph of mine as of 5/'04**

III. Rule R647-4-106 - Operation Plan

106.1 - Mineral(s) to be mined: Shale for brickmaking

106.2 - Type of Operation Conducted:

Describe the typical methods and procedures to be used in mining operations, on-site processing and concurrent reclamation. Include equipment descriptions where appropriate.

Mining consists of removing a thin layer of overburden / growth medium layer and excavating and stockpiling a layer of shale using a track-hoe. A mine dump truck may be used to move shale and overburden material. Shale is stockpiled at the site for later haulage to Interstate Brick.

Concurrent Reclamation will be done by backfilling areas previously mined with new overburden material that is removed to expose the shale seam as mining progresses into the hill.

Mining will progress into the side of the hill in a Southwesterly direction. A benched slope, running in a Northwest to Southeast direction, will be established a mining progresses into the hill. After mining permanently ends the benches will be graded.

There is No on-site processing.

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Approximately .4 miles of the existing 1.6 mile road from the mine to the highway (item 105.1 (c) on the Base Map) runs to the edge of property owned by Interpace Brick Company. This cuts through a very small slice of land owned by the BLM. From the Interpace property line approximately half a mile runs though Interpace Property on what is known as "the old Tickville road", the remainder is on is on hard packed gravel and paved roads. The .4 mile section from Interpace's property is blocked off to keep the public from entering Interpace property when mining is not taking place at Interstate's mine. The .4 miles of road is usable as is, but may be scraped as needed. After the mining operation is over it will be ripped and seeded. Maintenance of the road though Interpace Brick's property will be done as required in cooperation between Interstate Brick and Interpace Brick.

106.3 - Estimated Acreage

Acreage listed here should match areas measured off the maps provided.

Areas of actual mining	<u>4.3 acres - see 105.2 (b) 3 on Surface</u>
<u>Facilities Map</u>	
Overburden/waste dumps:	<u>2.6 acres - see Reclamation Treatments</u>
<u>Map:</u>	
105.3 (a) 4 - topsoil storage areas associated with new mining - .5 acre est.	
105.3 (a) 5 - overburden storage areas associated with new mining 1 acre est.	
105.3 (a) 6 - overburden material from before small mine permit, .5 acre	
105.3 (a) 7 - overburden stoarage area associated with Small Mine and prior, .6 acre.	
Ore and product stockpiles:	<u>.9 acres - see 105.2 (b) 2 on Surface Facilities</u>
<u>Map</u>	
Access/haul roads:	<u>1.1 acre - see 105.3 (a) 1 on Reclamation</u>
<u>Treatments map</u>	
Associated on-site processing facilities:	<u>n/a</u>
Tailings disposal:	<u>n/a</u>
Other - Please describe:	<u>6.7 acres - includes the area within area</u>
<u>105.2 (b) 1 shown on the Surface Facilities map and 105.3 (b) on Reclamation Treatments Map not covered by the above areas.</u>	
Total Acreage	<u>15.6</u>

106.4 - Nature of material including waste rock/overburden and estimated tonnage

Describe the typical annual amount of the ore and waste rock/overburden to be generated, in cubic yards. Where does the waste material originate? What is the nature of the overburden/wastes (general chemistry/mineralogy and description of geologic origin)? Will it be in the form of fines or coarse material? What are the typical particle size and size fractions of the waste rock?

Thickness of overburden:	<u>2</u> ft.
Thickness of mineral deposit:	<u>2</u> ft.
Estimated annual volume of overburden:	<u>1,386*</u> cu. yds.
Estimated annual volume of tailings/reject materials:	<u>see overburden</u> cu. yds.
Estimated annual volume of ore mined:	<u>11,259**</u> cu. yds.

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Overburden/waste description: Consists of approximately 2' thick of soil and small rocks.

* *estimated annual volume of overburden: 187,050 ft² (over next 5 years-see item 105.2 (b) 3 on Surface Facilities Map) x 2 ft. (est. thickness) divided by 27 CY/ft³ = 6,927 CY over 5 years, 1,386 CY average annually.*

** *estimated annual volume of shale mined: 152,000ft² (over next 5 years-see item 105.2 (b) 3, on Surface Facilities map) x 10 ft (est. thickness) divided by 27 CY/ft³ = 56,296 CY over 5 years, 11,259 CY average annually.*

106.5 - Existing soil types, location of plant growth material

Specific information on existing soils to be disturbed by mining will be required. General soils information may not be sufficient. **See soils analysis included in Appendix 1.**

Provide specific descriptions of the existing soil resources found in the area. Soil types should be identified along with depth and extent, especially those to be directly impacted by mining. **See below.**

Soils - The plan shall include an Order 3 Soil Survey (or similar) and map. This information is needed to determine which soils are suitable for stockpiling for revegetation. This soil data may be available from the local Natural Resources Conservation Service office, or if on public lands, from the land management agency. The map needs to be of such scale that soil types can be accurately determined on the ground (see Attachment I).

As the two soil maps show below, three soil types have been disturbed by the Allred Mine. Soils are tightly associated with the topography of the area. All of the future mining will remove the Lodar Rock Outcrop, designated LdF on the maps.

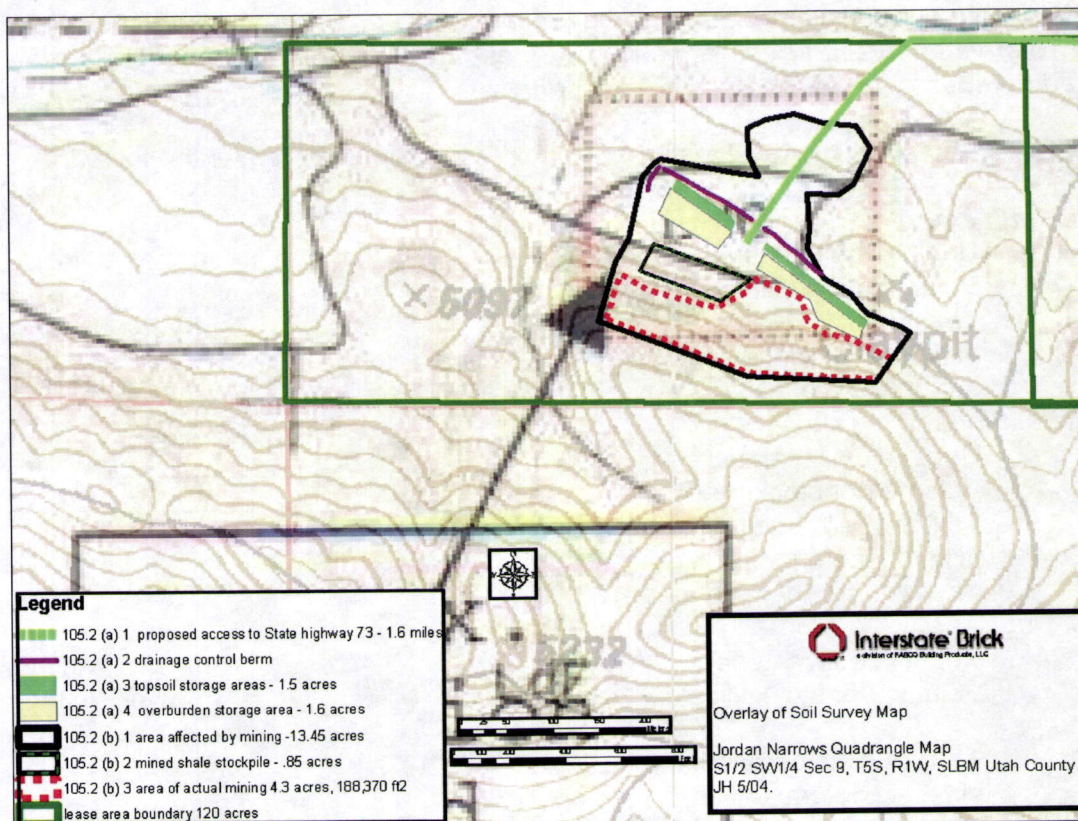
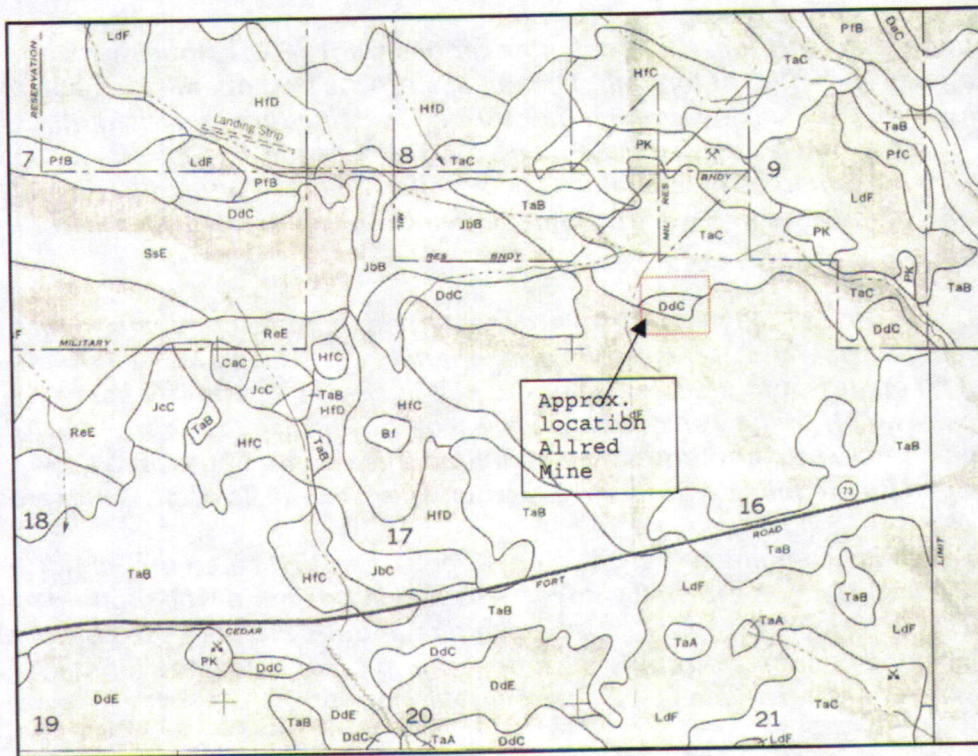
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Description of Soil types:

The Lodar rock outcrop (LdF) complex ranges from 3-70% slopes with an average of 10 inches of topsoil. These soils are located on hillsides and are shallow and excessively drained that formed in colluvium and residuum. The profile is strongly alkaline (pH 8.6), and ranges between 18-27% clay. These soils are classified as mesic lithic Calcixerolls. This soil type underlies the majority of the area at the Allred Mine and is what will be disturbed in future mining.

The Donnardo stony loams (DdC) are located on gentle slopes (2-8%) that are remnant alluvial fans. These soils are generally very deep and well drained with about 10 inches of topsoil, however the soil becomes very stony below 4 inches. The pH of the soil ranges from 7.6 at the surface to 8.2 at about 10 inches deep. The Donnardo stony loam underlies some of the area now disturbed by the mine. These soils are classified as mesic ardic Calcixerolls.

The Taylorsville silt loam (TaC) lies on slopes of 4-8% located on the north side of the Allred Mine on the valley floor. This soil is deep and well drained and lies on old lake terraces. Topsoil depths average about 7 inches with a pH of about 8.4. The soil becomes strongly alkaline (up to pH 8.9) below the topsoil. These soils are classified as mesic calcixerollic Xerochrepts.

Two soil samples from the present stockpiles have been analyzed at Utah State University and are included in the baseline assessment of soils and vegetation. No soils analyzed are particularly troublesome for future reclamation. Soil sample tests are at the end of Appendix 1.

- (a) Each soil type to be disturbed needs to be field analyzed for the following:

Donnardo stony loams

Depth of soil material	<u>10</u> inches
Volume (for stockpiling)	<u>0</u> cu. yds.
Texture (field determination)	<u>Stony loam</u>
pH (field determination)	<u>7.6</u>
(cross reference with item 106.6)	

Taylorsville silt loam:

Depth of soil material	<u>7</u> inches
Volume (for stockpiling)	<u>0</u> cu. yds.
Texture (field determination)	<u>Silt loam</u>
pH (field determination)	<u>8.4</u>
(cross reference with item 106.6)	

Lodar rock outcrop:

Depth of soil material	<u>10</u> inches
Volume (for stockpiling)	<u>approx 20,000*</u>
Texture (field determination)	<u>Silt loam</u>
pH (field determination)	<u>8.6</u>
(cross reference with item 106.6)	

cu. yds.

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*** estimated that 14,000 CY of top soil will be salvaged in new mining (4.3 acres, 187,050 ft², X 2' / 27 = 13,856 CY). The remainder of material needed to provide a 1 – 2 foot covering of soil over the entire area will be taken as needed from the piles depicted in 105.3 (a) 6, overburden material from before Small mine and prior mining, 105.3 (a) 7, overburden associated with the Small Mine.**

- (b) Where there are problem soil areas (as determined from the field examination) laboratory analysis may be necessary. Soil samples to be sent to the laboratory for analysis need to be about one quart in size, properly labeled, and in plastic bags. Each of the soil horizons on some sites may need to be sampled. Soil sample locations need to be shown on the soils map. Soil analysis for these samples should include: texture, pH, Ec (conductivity), CEC (Cation Exchange Capacity), SAR, % Organic Matter, Total N, Available Phosphorus (as P₂O₅), Potassium (as K₂O), and acid/base potential.

106.6 - Plan for protecting and redepositing existing soils

Thickness of soil material to be salvaged and stockpiled:	<u>10*</u>	inches
Area from which soil material can be salvaged: (show on map)	<u>4.3</u>	acres
Volume of soil to be stockpiled:	<u>5,814</u>	cu. yds.
(cross reference with item 106.5 (a))		

*** This is the estimated amount of top soil that can be salvaged from new mining done in association with this LMO (see 105.2 (b) 3, area of actual mining, on Surface Facilities map.**

Describe how topsoil or subsoil material will be removed, stockpiled and protected.

Where possible, topsoil shall be stripped and stockpiled separately from subsoil. Topsoil stockpiles will be stockpiled to maintain as much surface area as is economically feasible to retain soil microbial activity. Topsoil and subsoil stockpiles shall be seeded with an appropriate seed mix if the stockpile is to remain undisturbed for more than 6 months to protect them from excessive erosion.

106.7 - Existing vegetative communities to establish revegetation success

Vegetation - The Permittee / Operator is required to return the land to a useful condition and reestablish at least 70 percent of the premining vegetation ground cover.

Provide the Division with a description of the plant communities growing onsite and the percent vegetation cover for each plant community located on the site. Describe the methodology used to obtain these values.

The percent ground cover is determined by sampling the vegetation type(s) on the areas to be mined (see Attachment I for suggested sampling methods).

- (a) Vegetation Survey - The following information needs to be completed based upon the vegetation survey:

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Sampling method used
along 3 randomly placed transects

Ocular estimation of cover

Number of plots or transects (10 minimum)

10 plots on each of 3 transects-

total 30 plots.

Ground Cover

Percent

Vegetation (perennial grass, forb and shrub cover)

31%

Litter

26%

Rock/rock fragments

31%

Bare ground

8.9%

Moss

3.5%

100%

Revegetation Requirement

(70 percent of above vegetation figure)

21.7%

Indicate the vegetation community(ies) found at the site.

List the predominant perennial species of vegetation growing in each vegetation community type.

Artemisia tridentate var. wyomingensis

Wyoming big sagebrush-13%

Pseudoroegneria spicata

Bluebunch wheatgrass - 8%

Poa secunda

Sandberg's bluegrass - 3%

Agropyron cristatum

Crested wheatgrass -3%

- (b) Photographs - The Permittee / Operator may submit photographs (prints) of the site to show existing vegetation conditions. These photographs should show the general appearance and condition of the area to be affected and may be utilized for comparison upon reclamation of the site. Photographs should be clearly marked as to the location, orientation and the date they were taken.

Photographs are available in the Baseline Vegetation Assessment in Appendix 1.

106.8 - Depth to groundwater, overburden material & geologic setting

Describe the approximate depth to groundwater in the vicinity of the operation based on the completion of any monitoring or water wells in the area. Please show the location of these wells on the base map.

Depth to groundwater

greater than 500 ft.

Provide a narrative description of the geology of the area and/or a geologic cross section.

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Most of the geologic deposits in the immediate area of the mine are derived from recent deposits from the ancient lake Bonneville. There are also pockets of surficial limestone deposits from the Mississippian period of the Paleozoic era in the area. The main soil series of the area is the Donnardo- Borvant-Juab series, which formed on alluvial fans.

106.9 - Location and size of ore and waste stockpiles, tailings and treatment ponds, and discharges

Describe the location and size of any proposed waste/overburden dumps, stockpiles, tailings facilities and water storage or treatment ponds. ***No overburden piles or dumps are being proposed. The mine plan calls for backfilling overburden in previously mined areas in preparation for seeding.***

Describe how overburden material will be removed and stockpiled. ***Overburden material will be removed from atop the shale seam and redeposited onto areas previously mined. See item 105.3 (a) 5 on Reclamation Treatments Map.***

Describe how tailings, waste rock, rejected materials, etc. will be disposed of. ***No material handled at this mine requires disposal. All overburden will be used in reclamation.***

Describe the acreage and capacity of waste dumps, tailings ponds and water storage ponds to be constructed. All impoundments must include the necessary hydrologic calculations to determine if they are adequately sized to handle storm events. ***There will be no waste dumps, tailings ponds, or water storage ponds in this project.***

Describe any proposed effluent discharge points (UPDES) and show their location on the surface facilities map. Give the proposed discharge rate and expected water quality. Attach chemical analyses of such discharge if available. ***There are no effluent discharge points and none will be created. No effluents are generated by this mining operation.***

IV. R647-4-107 - Operation Practices

During operations, the Permittee / Operator shall conform to the practices listed under this section of the Minerals Rules unless the Division grants a variance in writing.

Describe measures taken to minimize hazards to public safety during mining operations regarding:

the closing or guarding of shafts and tunnels to prevent unauthorized or accidental entry in accordance with MSHA regulations; ***No shafts or tunnels currently exist or will be made.***

the disposal of trash, scrap metal, wood and extraneous debris; ***These materials are not generated by this mining operation.***

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the plugging or capping of drill, core or other exploratory holes; **No drilling has been done at this mine and none is being requested in this mine plan.**

the posting of appropriate warning signs in locations of public access to operations; **This is not necessary because there will be no high walls.**

the construction of berms, fences or barriers above highwalls or other excavations. **As the working face of the mine advances, sloped berms will be constructed. See cross-section drawings in Appendix 2. A berm will be put in above the wall to protect the public.**

If any of these safety measures are unnecessary, please explain why.

Describe measures taken to avoid or minimize environmental damages to natural drainage channels which will be affected by this mining operation.

Natural drainages shall always be avoided when at all possible for mine access as well as an area for any other mining activities (i.e. stockpiling areas, waste rock, etc.). Sediment and erosion control are described below to minimize sediment movement off site or into any drainages.

Describe measures taken to control and minimize sediment and erosion on areas affected by this mining operation. Describe measures being taken to prevent sediment from leaving the disturbed area.

In the winter months water borne sediment from the disturbed mine area collects in the mine area and does not leave the premises. Where applicable Best Management Practices (BMPs) shall be employed to prevent sediment movement off site. This will include making a berm if necessary (see item 105.2 (a) 2 on Surface Facilities map) on the Western border, of the active mine area, making the mine area a sediment detention area (no mining takes place in muddy wet conditions) to prevent water from leaving the mine site.

Identify any potentially deleterious materials that may be stored on site (including fuel, oil, processing chemicals, etc.) and describe how they will be handled and stored.

No deleterious materials are used in this mining operation and no materials are stored on site.

Describe the measures taken to salvage and store soils to be used in reclamation.

Soils have been stockpiled at the mine site. Should future mining take place at this site, topsoil shall be stripped from the subsoil and stockpiled in separate piles. When at all possible, topsoil shall be directly hauled to areas ready to be reclaimed (concurrent reclamation).

Describe how stockpiled topsoil will be protected from erosion and further impact.

Should stockpiled soil be scheduled to remain bare for more than 6 months, the stockpile soil scheduled to remain bare for for than 6 months, the stockpile will be seeded with an appropriate mix of seed to minimize bare soil exposure and retain biological activity in the soil. Furthermore, if OHVs or other forms of recreation are determined to be a problem in the area, barriers shall be constructed to ensure

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recreationists cannot access the stockpiles for safety reasons as well as to ensure the establishment and growth of seed.

Please describe any reclamation to be done during active mining operations prior to final closure. Reference these areas on a map.

As mining progresses into the side of the hill in a Southwesterly direction, overburden material will be backfilled in areas previously mined. If possible parts will be seeded as soon as possible after the material is placed in its final position.

V. **Rule R647-108 - Hole Plugging Requirements**

All drill holes which will not eventually be consumed by mining must be plugged according to the methods listed in this section. Describe the location of any aquifers encountered by drilling and the method to be used to plug such water containing holes. Describe the method to be used for plugging holes not containing water.

No drill holes exist at this site and no drilling is being requested as part of this mine plan.

VI. **Rule R647-109 - Impact Statement**

109.1 - Surface and groundwater systems

Describe impacts to surface or groundwater which could be caused by this mining operation. Describe how these impacts will be monitored and mitigated. The appropriate groundwater and stormwater control permits need to be obtained from the Division of Water Quality. Please reference any such permits.

No impacts to surface or groundwater resources are anticipated during this mining operation. An ephemeral stream lies just north of the permit boundary. Continued efforts shall be made to keep all sediment from moving off site into the drainage with the implementation of erosion control Best Management Practices. No permits are necessary for this site.

109.2 - Wildlife habitat and endangered species

Describe the impacts on wildlife habitat associated with this operation. Describe any impacts to big game species found in the area. Describe any impacts to riparian areas. Describe any impacts this operation will have on waterfowl (fly-over, temporary resident or permanent resident). List any threatened or endangered wildlife species found in the area. Describe impacts to threatened or endangered species and their habitats. Describe measures to be taken to minimize or mitigate any impacts to wildlife or endangered species.

No listed threatened or endangered species occur in the area. No riparian areas exist at the mine site, although ephemeral drainages shall be protected as described in section R647-4-107. Very little activity occurs at this mine on a regular basis, and when activity does occur, either mining or loading clay from the stockpile onto haul trucks, it is only over an approximate 3 week time period and during daylight hours. Therefore, negative effects on wildlife or waterfowl do not occur.

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109.3 - Existing soil and plant resources

Describe impacts to the existing soil and plant resources in the area to be affected by mining operations. Describe impacts to riparian or wetland areas which will be affected by mining. Describe impacts to threatened or endangered plant species. Describe measures to be taken to minimize or mitigate any impacts to soil and plant resources.

No riparian or wetland areas are located at the mine and no threatened or endangered plant species are in the area. The mine plan is designed to keep disturbed area and impacts minimal by back-filling overburden material in previously mined areas.

109.4 - Slope stability, erosion control, air quality, public health & safety

Describe the impacts this mining operation will have on slope stability, erosion, air quality, public health and safety. Include descriptions of highwall and slope configurations and their stability. Air quality permits from the Utah Division of Air Quality may be required for mining operations. Please reference any such permits. Describe measures to be taken to minimize or mitigate impacts to slope stability, erosion, air quality, or public health and safety.

No known air quality permits are required. Slope stability will be maintained by benching as required. See cross-section drawings in Appendix 2.

VII. Rule R647-4-110 - RECLAMATION PLAN**110.1 - Current land use and postmining land use**

Current or premining land use(s) [other than mining]: Livestock grazing

List future post-mine land-use(s) proposed: Livestock grazing and/or land development.

(Develop the reclamation plan to meet proposed post-mine land use.)

110.2 - Reclamation of roads, highwalls, slopes, leach pads, dumps, etc.

Describe how the following features will be reclaimed: roads, highwalls, slopes, impoundments, drainages and natural drainage patterns, pits, ponds, dumps, shafts, adits, 8 drill holes and leach pads. Describe the configuration of these features after final reclamation. Describe the rinsing and neutralization of leach pads associated with final decommissioning.

Roads will be ripped and seeded that are within the areas shown in the Reclamation Treatments Map. This mining operation does not include a pit (see cross-section drawings in Appendix 2), no ponds are associated with this mining operation, See Reclamation treatments map and Surface Facilities maps concerning overburden piles, no shafts exist as this mine and none will be made during this mining operation. No drill holes or leach pads are present at

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this site and noe are being requested in this permit. No leach pads exist at this site or are associated with this type of mining operation.

Describe how roads will be reclaimed. Road reclamation may include: regrading cut and fill sections, ripping the road surface with a dozer, topsoil replacement, construction of water bars, construction of traffic control berms or ditches, and reseeding.

Roads to be closed will be ripped to a depth of 18 inches to loosen the soil. A thin veneer of topsoil and/or other organic material shall then be spread on the roughened road, followed by broadcasting a see mix at a rate of 12.7 lbs/acre (see section 110.5)

Describe how highwalls will be reclaimed. Highwall reclamation may include: drilling and blasting, backfilling, regrading, topsoil replacement, and reseeding.

See cross-section drawings in Appendix 2.

Describe how slopes will be reclaimed. Slope reclamation may include: regrading to a 3 horizontal : 1 vertical (3h:1v) configuration, topsoil replacement, contour ripping, pitting, and reseeding.

Slopes on the western side of the mine going into the hillside will be benched and sloped. Overburden growth medium material and organic material will then be spread across the slope benches and the slope will then be broadcast seeded. Will be applied.

Describe how impoundments, pits and ponds will be reclaimed. Include the final elevations and final disposition of the drainage in and around the impoundment. If the impoundment, pit, or pond is intended to be left as part of the post-mining land use, then an agreement with the land managing agency/owner is required. Structures to remain must be left in a stable condition.

No impoundments, pits or ponds occur at this site.

Include the final size of the impoundment, pit, pond in acre-feet of storage and the capacity of the spillway to safely pass storm events.

No impoundment, pit, pond, or spillway are part of this mine plan.

Impoundments, pits, and ponds, which are not approved as part of the post mining land use shall be reclaimed, free draining, and the natural drainage patterns restored.

Describe how drainages will be reclaimed. Drainage reclamation would include: the reestablishment of a natural drainage pattern which fits in with the upstream and downstream cross-section of existing drainage in the vicinity of the disturbance; the reestablishment of a stable channel in the reclaimed reach of channel, using the necessary armoring to prevent excessive erosion and downstream sedimentation.

The reclamation of this mine reestablishes the natural drainage pattern of this area. See cross-section drawings in Appendix 2.

Include cross-sections and profiles of reestablished channels to demonstrate compatibility with existing drainage characteristics.

No drainage channels have been affected by previous mining or will be affected by future mining in this project. See cross-section drawings in Appendix 2.

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Describe how waste dumps will be reclaimed. Waste dump reclamation may include regrading to a 3h:1v configuration, topsoil replacement, mulch or biosolids applications, contour ripping or pitting, and reseeding. Characterization of the physical and chemical nature of the waste dump materials should be provided. ***The overburden pile areas (items 105.3 (a) 4-7 on Reclamation Treatments Map will be seeded.***

Describe how shafts and adits will be reclaimed. Reclamation of shafts may include: backfilling, installation of a metal grate, installation of a reinforced concrete cap, topsoil replacement and reseeding. Reclamation of adits may include: backfilling, installation of a block wall, installation of a metal grate, topsoil replacement and reseeding.

No shafts are present at this site nor are not part of this mining operation.

Describe how drill holes will be reclaimed. Drill hole reclamation must be consistent with the rules for plugging drill holes (R647-4-108). Reclamation of plugged drill holes may include topsoil replacement and reseeding.

No drill holes are present at this site and none are being requested in this Notice.

Describe how tailings areas will be reclaimed. Tailings reclamation may include: dewatering, neutralization, placement of cap materials, placement of subsoil materials, topsoil replacement and reseeding. Characterization of the physical and chemical makeup of the tailings material should be provided.

No tailings are generated at this site.

Describe how leach pads will be reclaimed. Reclamation of leached materials may include: neutralization or leached materials, rinsing of leached materials, dewatering leached materials, regrading slopes of leached materials to 3h:1v, extending pad liners, placement of capping materials, placement of subsoil materials, mulch or biosolids application, topsoil replacement and reseeding. Characterization of the physical and chemical makeup of the leached materials should be provided. Post closure monitoring and collection of drain down fluids should also be addressed.

No leach pads are present at this site.

NOTE: The Minerals Rules require overall highwall angles of no more than 45° at final reclamation unless a variance is granted. All dump or fill slopes should be left at an angle of 3h:1v or less. Any slopes steeper than 3h:1v must be reclaimed using state-of-the-art surface stabilization technology. Pit benches exceeding 35 feet in width should be topsoiled, or covered with fines, and revegetated.

Describe the final disposition of any stockpiled materials on site at the time of final reclamation.

The two piles associated with mining prior to this Notice and the Small Mine permit that preceded this, depicted as item 105 (d) 2 on the Base will be left as is for this project.

110.3 - Surface facilities to be left

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Describe any surface facilities which are proposed to remain on-site after reclamation (buildings, utilities, roads, drainage structures, impoundments, etc.). Describe their post-mine application. *Justification for not reclaiming these facilities must be included in the variance request section.*

None of the items described above will be left except for some of the roads in the area.

110.4 - Treatment, location and disposition of deleterious materials

Describe the nature and extent of any deleterious or acid forming materials located on-site. Describe how these materials will be neutralized, removed, or disposed of on site. Describe how buildings, foundations, trash and other waste materials will be disposed of.

There are no deleterious or acid forming materials located at this site or associated with this mining operation so none will be left at the site.

110.5 - Revegetation planting program and topsoil redistribution

Describe the revegetation tasks to be performed in detail. For example, will ripping, mulching, fertilizing, seeding and scarifying of these areas be performed and if so, how will this be accomplished? Correlate this information with the Reclamation Treatments Map.

a) Soil Material Replacement

In order to reestablish the required ground cover, one to two feet (depending on underlying material) of suitable soil material usually has to be redistributed on the areas to be reseeded. If the stockpiled soil isn't sufficient for this, soil borrow areas will need to be located.

If additional soil is needed it will be taken off the pile depicted in item 105.3 (a) 6, overburden material before small mine permit, and 105.3 (a) 7 overburden material associated with the small mine permit, shown on the Reclamation treatments map. A provision for reshaping this pile with a dozer is included in Appendix 2, page 14, item 6.

Describe the volume of soils and approximate depth of soil cover to be used in reclamation. Describe the source of these soils and provide an agronomic analysis of the soils. If soils will not be used describe the alternative material or amendments to be applied in lieu of soils. Describe the methods used to transport and place soils.

The volume of soil/overburden to be removed to expose the clay seam is expected to total approximately 14,000 CY of material (5,570 CY of topsoil at 7-10") The source of this material is 4.3 acres to be uncovered at an estimated dept. of 2 feet to expose the shale. See legend item 105.2 (b) 3, on the Surface Facilities Map. See Appendix 1 for soil analysis tests. Soils will be spread using a Cat D8R dozer or equivalent.

b) Seed Bed Preparation

Describe how the seedbed will be prepared and equipment to be used.

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The Division recommends ripping or discing to a minimum of 12 inches and leaving the seed bed surface in as roughened condition as possible to enhance water harvesting, erosion control and revegetation success. Compacted surfaces such as roads and pads should be deep ripped a minimum of 18 inches.

Seed beds shall be ripped from 6-18 inches (such as roads).

c) Seed Mixture - List the species to be seeded:

Provide a seed mix listing adaptable plant species and the rate of seeding that will be used at the site for reclamation. More than one seed mix may be needed, depending upon the areas to be reclaimed. Keep the proposed post-mining land use in mind when developing seed mixes.

Common Name	Species Name	Broadcast seeding Rate lbs/acre
<i>Intermediate wheatgrass</i>	<u><i>Agropyron intermedium</i></u>	2.0
<i>Bluebunch wheatgrass</i>	<u><i>Agropyron spicatum</i></u>	2.0
<i>Piute orchard grass</i>	<u><i>Dactylis glomerata</i></u>	0.5
<i>Great basin wildrye</i>	<u><i>Elymus cinereus</i></u>	2.0
<i>Indian ricegrass</i>	<u><i>Oryzopsis</i></u>	1.0
<i>Sandberg bluegrass</i>	<u><i>Poa sandbergii</i></u>	0.5
<i>'Ladak' alfalfa</i>	<u><i>Medicago sativa 'ladak'</i></u>	1.0
<i>Palmer penstemon</i>	<u><i>Penstemon plameri</i></u>	0.5
<i>Yellow sweetclover</i>	<u><i>Melilotus officinalis</i></u>	0.5
<i>Small burnet</i>	<u><i>Sanguisorba minor</i></u>	1.0
<i>Wyoming big sagebrush</i>	<u><i>Artemisia tridentata</i></u> <u><i>wyomingensis</i></u>	0.1
<i>4-Wing Saltbush</i>	<u><i>Altriplex canescens</i></u>	1.5
<i>Rubber rabbitbrush</i>	<u><i>Chrysothamnus nauseous</i></u>	0.25
<i>Forage kochia</i>	<u><i>Kochia prostrate</i></u>	0.5

Total lbs/acre 13.35

(The Division recommends seeding 12-15 lbs./acre of native and introduced adaptable species of grass, forb, and browse seed for drill seeding and 15-20 lbs./acre for broadcast or hydro seeding. The Division can provide assistance in developing reclamation seed mixes if requested).

d) Seeding Method

Describe method of planting the seed.

The Division recommends planting the seed with a rangeland or farm drill. If broadcast seeding, harrow or rake the seed 1/4 to 2 inch into the soil. Fall is the preferred time to seed.

Seeding will take place in the Fall via broadcasting following the application of ripping and bio-solid addition. When possible seeding will take place concurrently with a season of mining.

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e) Fertilization

Describe fertilization method, type(s) and application rate (if needed).

No fertilizers will be used because these only allow more aggressive noxious weeds and/or non-native plants to successfully compete against the seed mixture of native plants.

f) Other Revegetation Procedures

Please describe other reclamation procedures, such as mulching, biosolids application, irrigation, hydroseeding, etc., that may be planned.

Bio-Solids at a rate of 10 tons per acre will be spread to provide organic matter to help the seed mixture get established while keeping the nitrogen content to an absolute minimum to discourage the establishment of noxious weed and non-native plant species.

VIII. Rule R647-4-112 VARIANCE

The Permittee / Operator may request a variance from Rules R647-4-107 (Operation Practices), R647-4-108 (Hole Plugging), and R647-4-111 (Reclamation Practices) by submitting the following information:

- 1.11 the rule(s) which a variance is requested from; (rule number and content)
R647-4-111.7 – slopes on benches will be steeper than 3H:1V.
- 1.12 a description of the specific variance requested and a description of the area affected by the variance request; show this area on the Reclamation Treatments Map(s). **see item 105.3 (c) and 105.3 (d) on Reclamation Treatments Map. See also the cross section drawings in Appendix 2.**
- 1.13 justification for the variance; **It will not be possible to slope and reclaim the hill to 3H:1V after mining is completed.**
- 1.14 alternate methods or measures to be utilized in the variance area.
A berm for public safety will be constructed along the top of the benched area.

Variance requests are considered on a site-specific basis. For each variance requested, attach a narrative which addresses the four items listed above.

See comments above.

IX. Rule R647-4-113 - SURETY

A Reclamation surety must be provided to the Division prior to final approval of this application. In calculating this amount, include the following major tasks:

- 1) Clean-up and removal of structures. **Not applicable.**
- 2) Backfilling, grading and contouring. **See Appendix 2.**

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- 3) Soil material redistribution and stabilization. **See Appendix 2.**
- 4) Revegetation (preparation, seeding, mulching). **See Appendix 2.**
- 5) Safety gates, berms, barriers, signs, etc. **Not applicable.**
- 6) Demolition, removal or burial of facilities/structures, regrading/ripping of facilities areas. **Not applicable.**
- 7) Regrading, ripping of waste dump tops and slopes. **See Appendix 2.**
- 8) Regrading/ripping stockpiles, pads and other compacted areas. **See Appendix 2.**
- 9) Ripping pit floors and access roads. **See Appendix 2.**
- 10) Drainage reconstruction. **Not applicable.**
- 11) Mulching, fertilizing and seeding the affected areas. **See Appendix 2.**
- 12) General site clean up and removal of trash and debris. **See Appendix 2.**
- 13) Removal/disposal of hazardous materials. **Not applicable.**
- 14) Equipment mobilization. **See Appendix 2.**
- 15) Supervision during reclamation. **See Appendix 2.**

To assist the Division in determining a reasonable surety amount, please attach a reclamation cost estimate which addresses each of the above steps. The areas and treatments included in the reclamation treatments map should correspond with items included in the reclamation cost estimate. The reclamation costs used by the Division must be third party costs.

X. PERMIT FEE [Mined Land Reclamation Act 40-8-7(i)]

The Utah Mined Land Reclamation Act of 1975 [40-8-7 (I)] provides the authority for the assessment of permitting fees. Commencing with the 1998 fiscal year (July 1 - June 30), **and revised July 1, 2002**, annual permit fees are assessed to new and existing notices of intention and annually thereafter until the project disturbances are successfully reclaimed by the Permittee / Operator and released by the Division.

Large mining permits require an initial submission fee and annual fee of \$500.00 for surface disturbance of 50 or less acres, or a \$1,000.00 fee for surface disturbance greater than 50 acres (see page six Section III, Rule R647-4-106.3 for estimated disturbance calculation). The appropriate fee MUST accompany this application or it cannot be processed by the Division.

PLEASE NOTE: If you are expanding from a small mining operation to a large mining operation, the appropriate large mine permit fee, less the annual \$150.00 small mine fee (if already paid) MUST accompany this application.

XI. SIGNATURE REQUIREMENT

I hereby certify that the foregoing is true and correct. (Note: This form must be signed by the owner or officer of the company/corporation who is authorized to bind the company/corporation).

Signature of Permittee / Operator/Applicant: _____

Name (typed or print): Alfred K. Mueller

Title/Position (if applicable): President

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Date: 11/23/05

PLEASE NOTE:

Section 40-8-13(2) of the Mined Land Reclamation Act provides for maintenance of confidentiality concerning certain portions of this report. Please check to see that any information desired to be held confidential is so labeled and included on separate sheets or maps.

Only information relating to the location, size or nature of the deposit may be protected as confidential.

Confidential Information Enclosed: () Yes (X) No

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Attachment I**Vegetation Cover Sampling**

Vegetation cover sampling determines the amount of ground that is covered by live vegetation. It is divided into four categories which equal 100 percent. They are:

Vegetation - This is the live perennial vegetation. Care should be taken to avoid sampling in disturbed areas that have a large percentage of annual or weedy vegetation, such as cheatgrass and russian thistle.

Litter - This is the dead vegetation on the ground, such as leaf and stem litter.

Rock/rock fragments - This is the rock and rock fragments on the soil surface.

Bare ground - This is the bare soil which is exposed to wind and water erosion.

Cover Sampling - The following methods are acceptable:

Ocular Estimation

This method visually estimates the percentage of ground covered in a plot by the four components. Plot size is usually a meter or yard square or a circular plot 36 inches in diameter. Ten to twenty plots should be randomly sampled in each major vegetation type.

Line Intercept

Percent ground cover is obtained by stretching a tape measure (usually 100') over the ground and then recording which of the four components is under each foot mark. At least ten of these transects should be randomly laid out and measured in each major vegetation type.

Soil Survey and Sampling Methods

If a Natural Resource Conservation Service or land management agency soil survey is not available, the Permittee / Operator shall delineate all soil types that will be disturbed by mining on a map. Each soil type shall be sampled for its characteristics and inherent properties. Representative sampling locations should have similar geologic parent material, slopes, vegetative communities and aspects. The sampling locations should be representative of the soil type and be identified on the map. Sampling shall be at a minimum of one for each soil type disturbed.

The soil map needs to be of sufficient scale so that each soil type can be accurately located on the ground.

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Baseline Vegetation and Soil Assessment at Allred Mine

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Prepared for:
Interstate Brick
9780 South 5200 West
South Jordan, UT 84088

Prepared by:



WP Natural Resource Consulting, LLC
PO Box 520604
SLC, UT 84152
(801) 699-5459

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INTRODUCTION

Interstate Brick has been requested to submit a NOI to commence large mining operations for the Allred Mine in Utah County, sections 9 and 16, Township 5S, Range 1W. The permit is needed to bring Interstate Brick into regulatory compliance with the Utah Division of Oil Gas and Mining (DOGM). The purpose of this section of the report is to provide a baseline characterization of soils and vegetation according to the requirements of the Utah Oil, Gas and Mining Division as listed in sections 106.5 and 106.7 of Form MR-LMO, Notice of Intention to Commence Large Mining Operations. This information will assist in the design of a site appropriate and effective reclamation plan.

SITE DESCRIPTION

The area lies on the eastern boundary of Utah County just north of Highway 73 near the town of Clinton. The area lies at about 4800-5100 feet elevation and receives between 12 and 14 inches of precipitation annually. The highest precipitation months in this area are March, April and May, with about 1 to 1.5 inches of precipitation each month. The freeze free season is about 100-140 days (NRCS, 1980).

The slopes of the Allred Mine permitted boundary range from 2 to about 25%. This variation in topography is a major determinant of soil and vegetation type as well as past and present land use within the area. The valley floors have historically been disturbed and reseeded, likely due to agricultural use. The gentle slopes in the area harbor clays that have been mined and continue to be mined. The area is dominated by sagebrush (*Artemisia tridentata* var. *wyomingensis*) and perennial grasses such as bluebunch wheatgrass (*Pseudoregnesia spicata*), Sandberg's bluegrass (*Poa secunda*), and crested wheatgrass (*Agropyron cristatum*). Native communities in this area are comprised of approximately 65% perennial grasses, 10% forbs and 25% shrubs (NRCS, 1980).

Vegetation composition at the mine varies slightly according to past disturbances and landscape position. The slopes of the mine are in relatively good condition with appropriate structure, diversity, vigor and composition of native shrubs, forbs and perennial grasses. On the other hand,

Figure 1. Vegetation community on side slopes at Allred Mine.



the valley floor in this area has been historically disturbed and reclaimed. Although the valley floor is also dominated by Wyoming big sagebrush, this area has a lower species diversity and a dearth of native perennial grasses.

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Although this vegetation community is not in its former condition, it does provide sufficient cover to provide protection from soil erosion. Figures 1 and 2 show the differences in the vegetation communities

Figure 2. Vegetation community on valley floor at Allred Mine



SOILS

Three soils types are present within the Allred mining area, and are tightly associated with the topography of the area. The Donnardo stony loams are located on gentle slopes (2-8%) that are remnant alluvial fans. These soils are generally very deep and well drained with about 10 inches of topsoil, however the soil becomes very stony below 4 inches. The pH of the soil ranges from 7.6 at the surface to 8.2 at about 10 inches deep. The Donnardo stony loam underlies some of the area now disturbed by the mine. These soils are classified as mesic ardic Calcixerolls.

The Taylorsville silt loam lies on slopes of 4-8% located on the north side of the Allred Mine on the valley floor. This soil is deep and well drained and lies on old lake terraces. Topsoil depths average about 7 inches with a pH of about 8.4. The soil becomes strongly alkaline (up to pH 8.9) below the topsoil. These soils are classified as mesic calcixerollic Xerochrepts.

The Lodar rock outcrop complex ranges from 3-70% slopes with an average of 10 inches of topsoil. These soils are located on hillsides and are shallow and excessively drained that formed in colluvium and residuum. The profile is strongly alkaline (pH 8.6), and ranges between 18-27% clay. This soil type underlies the majority of the area at the Allred Mine. These soils are classified as mesic lithic Calcixerolls.

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METHODS

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To ascertain the range of variability for vegetation cover, ground cover, and species composition, 3 transects of 50 meters each were established in areas determined to be representative of the vegetation of the area (See Map 1). Once within a stand of typical vegetation, a pin was spun to randomly determine the azimuth of the transect. Ten (10) square meter (1 m^2) plots were placed at 5 meter intervals along the transect. Per cent vegetation cover was estimated in the 1 m^2 plot by overall ground cover, species and life form. The per cent cover of litter, bare ground and rock was also estimated in the plot. Transects 1 and 2 were placed on the slopes just south of the current mining activity as the desired clay seam likely lies along the base of the slope. The third transect was placed on the valley floor where some mining related disturbance has also occurred.

Although the vegetation communities are effectively the same as described above, it appears appropriate to present the vegetation data in two modes. First, all 3 transects were compiled as one vegetation community to obtain a comprehensive description of the site. In addition, data are presented as transects 1 and 2 as comprising one vegetation community and transect 3 as another. The differences in community structure and diversity does not change the overall revegetation goal, however, it does provide an improved portrayal of the differences between the two areas.

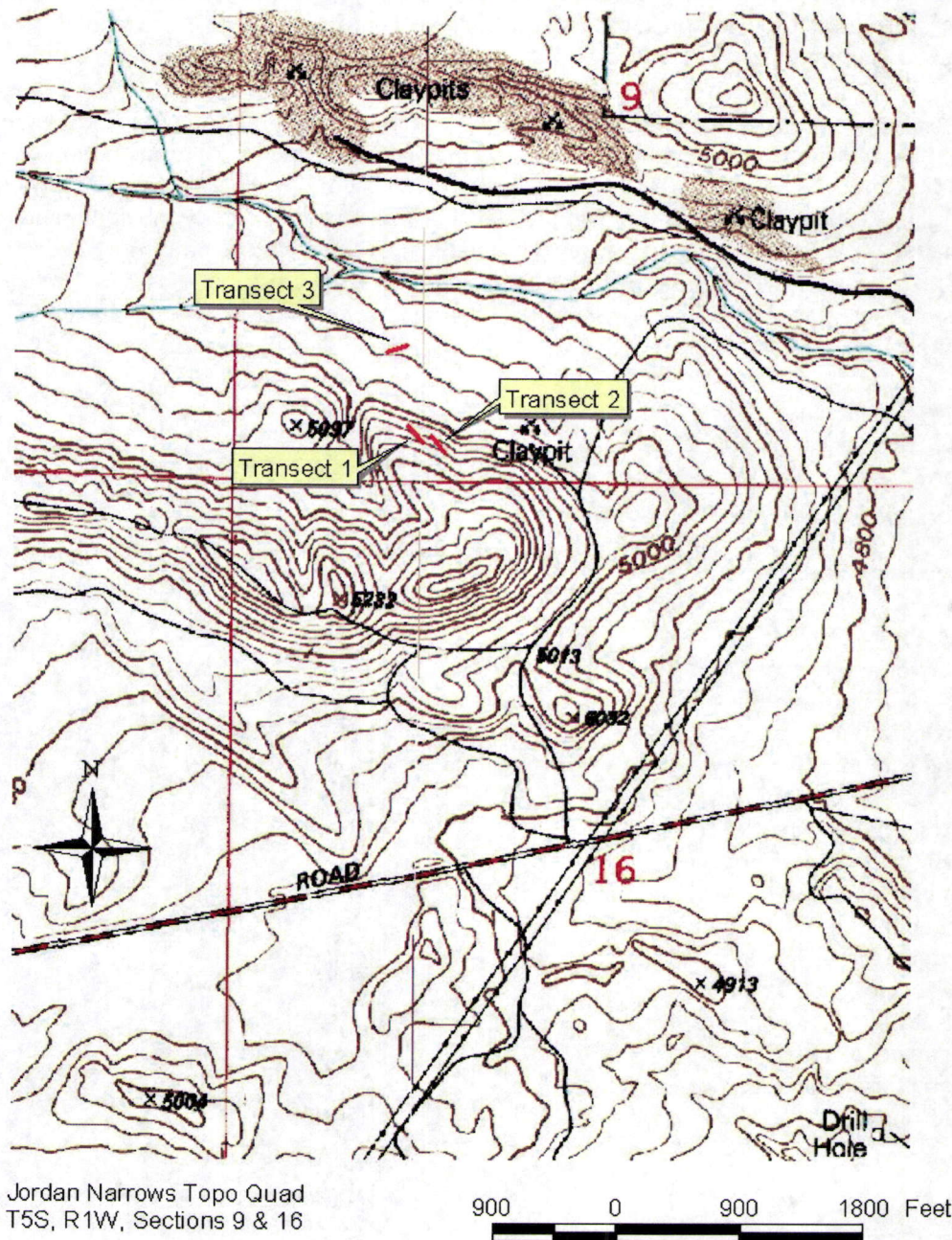
Two soil samples from existing growth medium stock piles were sent to the USU soils laboratory to determine pH, EC, CEC, %OM, N, P and K. Results are attached at the end of this report.

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Map 1

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Location of Vegetation Transects at Allred Mine



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RESULTS

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Vegetation communities at the site are relatively consistent in terms of the amount of vegetation cover, but understory components differ considerably between the valley bottoms and the slope sides. The various historic and present land disturbances contributes to the current condition of the vegetation communities.

Overall vegetation cover- For the overall vegetation cover, data from all three transects were calculated together. The total vegetation cover is 31% +/- 17%. Litter, bare ground, mosses, and rock cover were 26% +/- 19%, 10% +/- 12%, 3.5 % +/- 6% and 32% +/- 24% respectively. Wyoming big sagebrush (*Artemisia tridentata* var. *wyomingensis*), is clearly the dominant shrub (43% relative cover), and perennial grasses (both native and introduced) contribute 42% relative cover, with bluebunch wheatgrass (*Pseudoregna spicata*), Sandberg's bluegrass (*Poa secunda*), and crested wheatgrass (*Agropyron cristatum*) as dominants. Perennial forbs contributed 9% relative cover. Complete tabulated results are shown in Table 1.

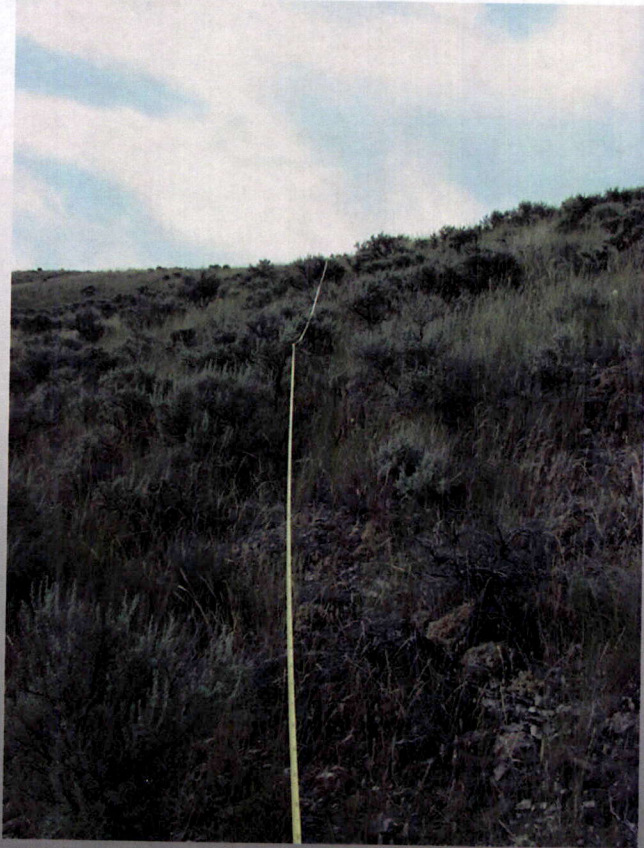
Transects 1& 2- Transects 1 and 2 likely lie on the boundary between the Donnardo stony loam and the Lodar complex. Total vegetation cover for this area is 33% +/- 13%. Litter, bare ground and rock cover were 25% +/- 15%, 10% +/- 13%, and 35% +/- 24% respectively. The shrub strata consisted of 36% relative cover and is dominated by Wyoming sagebrush with lesser amounts of snakeweed (*Gutierrezia sarothrae*), and Douglas rabbitbrush (*Chrysothamnus viscidiflorus*). Grass species were more prevalent than sagebrush (46% relative cover) and included bluebunch wheatgrass and Sandberg's bluegrass. Perennial forbs in the area averaged 13% relative cover and included species such as Indian paintbrush (*Castilleja chromosa*), sego lily (*Calachortus nuttallii*), phlox (*Phlox hoodii*) and false dandelion (*Agoseris glauca*). Complete results are shown in Table 2.

Figure 1- Transect 1 Azimuth 144°



2005 8 5 AM

Figure 2- Transect 2 Azimuth 140°



sagebrush (61% relative cover), and the understory is dominated by crested wheatgrass with 33% relative cover. This area also has a strong cheatgrass (*Bromus tectorum*) component at 5% relative cover. Complete results are shown in Table 3.

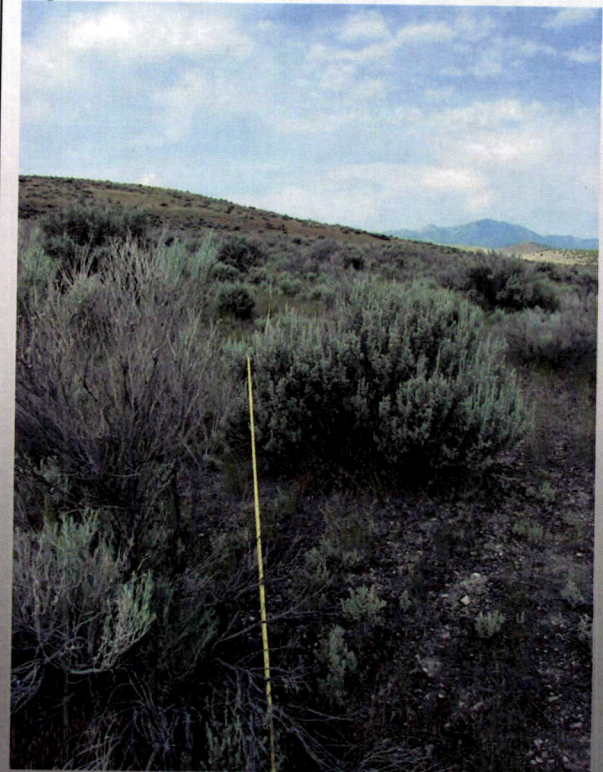
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Transect 3- Transect 3 likely lies near the boundary of the Taylorsville loam and the Donnardo stony loam. Total vegetation cover for this area is 27% +/- 24%. Litter, mosses, bare ground and rock cover were 29% +/- 24%, 9% +/- 7%, 10% +/- 9%, and 22% +/- 21% respectively. The shrub strata is dominated completely by Wyoming

Figure 3 Transect 3- Azimuth 242°



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Table 1. Vegetation and Ground Cover at Allred Mine

30- 1 sq m plots		Common Name	Mean	Std Deviation	Low	High	Rel cover	Frequency
Total Vegetation Cover	Litter							
			31.207	17.332	7.000	72.000		
			26.300	18.572	1.000	70.000		
			3.500	6.000	0.000	18.000		
			31.517	23.867	2.000	80.000		
			91.100	11.445	50.000	100.000		
			9.889	11.660	1.000	50.000		
Cool season perennial grasses								
		Bluebunch wheatgrass	8.033	9.676	0.000	32.000	26.00	66.67
		Sandberg's bluegrass	2.133	3.319	0.000	15.000	6.90	60.00
Introduced perennial grasses								
		Crested wheatgrass	2.900	6.082	0.000	20.000	9.39	33.33
		Intermediate wheatgrass	0.000	0.000	0.000	0.000	0.00	3.33
Annual grasses								
		Cheatgrass	0.700	1.841	0.000	8.000	2.27	30.00
Perennial forbs								
		False dandelion	0.033	0.183	0.000	1.000	0.11	3.33

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<i>Artemisia ludoviciana</i>	Louisiana sage	0.000	0.000	0.000	0.000	0.000	3.33
<i>Astragalus cicer</i>	Cicer milkvetch	0.000	0.000	0.000	0.000	0.00	3.33
<i>Astragalus spp</i>	Milkvetch	0.267	1.048	0.000	5.000	0.86	6.67
<i>Calochortus nuttallii</i>	Sego lily	0.000	0.000	0.000	0.000	0.00	10.00
<i>Castilleja chromosa</i>	Indian paintbrush	0.600	1.522	0.000	6.000	1.94	16.67
<i>Chaenactis douglasii</i>	Dusty maiden	0.000	0.000	0.000	0.000	0.00	3.33
<i>Cirsium undulatum</i>	Wavy leaf thistle	0.000	0.000	0.000	0.000	0.00	3.33
<i>Cymopterus spp</i>	Spring parsley	0.000	0.000	0.000	0.000	0.00	3.33
<i>Erigeron spp</i>	Buckwheat	0.067	0.365	0.000	2.000	0.22	3.33
<i>Grindelia squarrosa</i>	Curly cup gumweed	0.000	0.000	0.000	0.000	0.00	3.33
<i>Phlox hoodii</i>	Phlox	0.820	2.187	0.000	11.000	5.39	18.03
<i>Sphaeralcea coccinea</i>	Globemallow	0.267	1.461	0.000	8.000	0.86	3.33
<i>Unknown Brassicaceae</i>	Mustard	0.033	0.183	0.000	1.000	0.11	3.33

Annual and biennial forbs

<i>Thlaspi arvense</i>	Pennycress	0.233	0.935	0.000	5.000	0.76	26.67
<i>Tragopogon dubius</i>	Salsify	0.067	0.254	0.000	1.000	0.22	6.67

Sub-shrubs

<i>Gutierrezia sarothrae</i>	Snakeweed	0.633	2.580	0.000	13.000	2.05	6.67
------------------------------	-----------	-------	-------	-------	--------	------	------

Shrubs

<i>Artemisia nova</i>	Black sage	0.000	0.000	0.000	0.000	0.00	3.33
<i>Artemisia tridentata</i>	Wyoming big sagebrush	13.267	18.482	0.000	67.000	42.93	60.00
<i>Chrysothamnus nauseosus</i>	Rabbitbrush	0.000	0.000	0.000	0.000	0.00	3.33
<i>Chrysothamnus viscidiflorus</i>	Douglas rabbitbrush	0.000	0.000	0.000	0.000	0.00	3.33

**Values of 0.00 indicate presence, but not captured in 1sq m plots

Table 2. Vegetation and Ground Cover for Transects 1 & 2 at Allred Mine

Common Name	Mean	St Deviation	Low	High	Rel Cover	Frequency
Total Vegetation Cover	32.900	13.050	8.000	55.000		
Litter	24.750	15.345	2.000	53.000		
Mosses	15.000		15.000	15.000		
Rock	34.684	24.475	7.000	80.000		
Total Ground Cover	91.600	12.492	50.000	100.000		
Bare Soil	9.882	13.028	1.000	50.000		
Cool season perennial grasses						
<i>Agropyron spicatum</i>	12.050	9.589	0.000	32.000	36.57	100.00
<i>Poa sandbergii</i>	3.200	3.636	0.000	15.000	9.71	90.00
Annual grasses						
<i>Bromus tectorum</i>	0.100	0.308	0.000	1.000	0.30	10.00
Perennial forbs						
<i>Agoseris glauca</i>	0.050	0.224	0.000	1.000	0.15	5.00
<i>Artemisia ludoviciana</i>	0.000	0.000	0.000	0.000	0.00	5.00
<i>Astragalus spp</i>	0.400	1.273	0.000	5.000	1.21	10.00
<i>Calochortus nuttallii</i>	0.000	0.000	0.000	0.000	0.00	15.00
<i>Castilleja chromosa</i>	0.900	1.804	0.000	6.000	2.73	25.00

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<i>Cymopterus spp</i>	0.000	0.000	0.000	0.000	0.00	5.00
<i>Erigeron spp</i>	0.100	0.447	0.000	0.000	0.30	5.00
<i>Phlox hoodii</i>	1.220	2.584	0.000	11.000	7.59	26.83
<i>Sphaeralcea coccinea</i>	0.400	1.789	0.000	8.000	1.21	5.00
Unknown Brassicaceae	0.050	0.224	0.000	1.000	0.15	5.00
Annual and biennial forbs						
<i>Thlaspi arvense</i>	0.350	1.137	0.000	5.000	1.06	40.00
Sub-shrubs						
<i>Gutierrezia sarothrae</i>	0.950	3.137	0.000	13.000	2.88	10.00
Shrubs						
<i>Artemisia tridentata</i> var <i>Wyomingensis</i>	11.900	15.286	0.000	45.000	36.12	55.00
<i>Chrysothamnus viscidiflorus</i>	0.000	0.000	0.000	0.000	0.00	5.00

**Values of 0.00 indicate presence, but not captured in 1sq m plots

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Table 3. Vegetation and Ground Cover for Transect 3 at Allred Mine

10- 1 sq m plots	Common Name	Mean	St Deviation	Low	High	Rel Cover	Frequency
Total Vegetation Cover							
Litter		26.800	23.635	7.000	72.000		
Mosses		29.400	24.459	1.000	70.000		
Rock		8.900	6.674	1.000	18.000		
		22.222	21.353	2.000	69.000		
Total Ground Cover							
		90.100	9.539	69.000	97.000		
Bare Soil							
		10.200	9.343	3.000	31.000		
Introduced perennial grasses							
<i>Agropyron cristatum</i>	Crested wheatgrass	8.700	7.945	1.000	20.000	33.21	100.00
Annual grasses							
<i>Bromus tectorum</i>	Cheatgrass	1.300	2.541	0.000	8.000	4.96	60.00
Annual and biennial forbs							
<i>Tragopogon dubius</i>	Salsify	0.200	0.422	0.000	1.000	0.76	20.00
Shrubs							
<i>Artemisia tridentata</i> var. <i>wyomingensis</i>	Wyoming big sagebrush	16.000	24.390	0.000	67.000	61.07	70.00

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**Soil Test Report
and
Fertilizer Recommendations**

USU Analytical Labs

Utah State University
Logan, Utah 84322-4830
(435) 797-2217
(435) 797-2117 (FAX)

Date Received: 6/18/2003
Date Completed:

Name: INTERSTATE BRICK CO
Address: 9780 S 5200 W
ATTN FRANKIE
WEST JORDAN UT 84088-5625

Phone: 801-280-5267
County: SALT LAKE

Lab Number: 3011176

Grower's Comments:

Acres in Field:

Identification: ALLRED 1 EAST TO WEST

Crop to be Grown: Reclamation

Soil Test Results			Interpretations	Recommendations
Texture		Sandy Loam		
pH		8.1	Normal	
Salinity - ECe	dS/m	0.7		
Phosphorus - P	mg/kg	1.0		50-70 lbs P2O5/A
Potassium - K	mg/kg	176		0 lbs K2O/A
Nitrate-Nitrogen - N	mg/kg	9.49		
Zinc - Zn	mg/kg			
Iron - Fe	mg/kg			
Copper - Cu	mg/kg			
Manganese - Mn	mg/kg			
Sulfate-Sulfur - S	mg/kg			
Organic Matter	%	2.0		
SAR				

Notes
CEC = 15.9 meq/100g

For further assistance, please see your County Agent --

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Soil Test Report

and

Fertilizer Recommendations

USU Analytical Labs

Utah State University
Logan, Utah 84322-4830
(435) 797-2217
(435) 797-2117 (FAX)

Date Received: 6/18/2003

Date Completed:

Name: INTERSTATE BRICK CO
Address: 9780 S 5200 W
ATTN FRANKIE
WEST JORDAN UT 84088-5625

Phone: 801-280-5267

County: SALT LAKE

Lab Number: 3011177

Grower's Comments: Acres in Field:

Identification: ALLRED 2 EAST END

Crop to be Grown: Reclamation

Soil Test Results			Interpretations	Recommendations
Texture		Sandy Loam		
pH		8.1	Normal	
Salinity - ECe	dS/m	0.7		
Phosphorus - P	mg/kg	1.7		50-70 lbs P2O5/A
Potassium - K	mg/kg	156		0 lbs K2O/A
Nitrate-Nitrogen - N	mg/kg	8.05		
Zinc - Zn	mg/kg			
Iron - Fe	mg/kg			
Copper - Cu	mg/kg			
Manganese - Mn	mg/kg			
Sulfate-Sulfur - S	mg/kg			
Organic Matter	%	1.5		
SAR				

Notes

CEC = 17.3 meq/100g

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Interstate Brick
a division of PABCO Building Products, LLC

Notice of Intention to Commence Large Mining Operations

Allred Mine

Appendix 2

Mine cross-section drawings & Reclamation Cost Estimate

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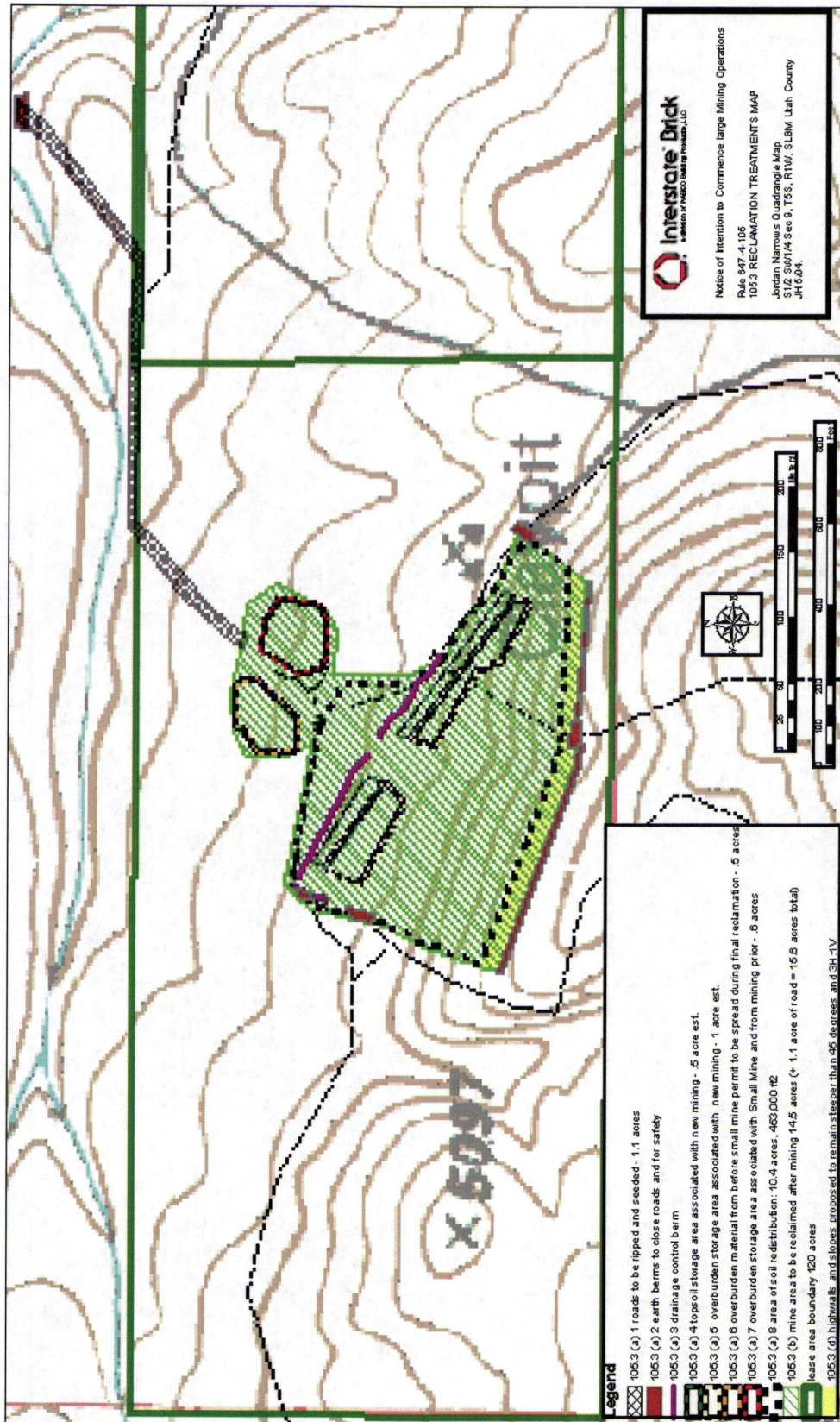
2. Reclamation Treatments Map
3. map showing transect locations used for making cross-section drawings.
4. Transect 1 cross section before mining, at present, and at end of project
5. Transect 2 cross-section at present
6. Transect 2 cross-section at end of mining
7. Transect 2 cross-section at end of reclamation
8. Transect 3 cross-section at present
9. Transect 3 cross-section at end of mining
10. Transect 3 cross-section at end of reclamation
11. Track Hoe time estimate for redistributing soils over area 105.3 (a) 8 on Reclamation Treatments map.
12. Dump Truck time estimate for redistributing soils over area 105.3 (a) 8 on Reclamation Treatments map.
13. Dozer time estimate for redistributing soils over area 105.3 (a) 8 on Reclamation Treatments map.
14. Track Hoe time estimate for placing soils on benches, area 105.3 (d) on reclamation treatments map.
15. Dump truck time estimate for placing soils on benches, area 105.3 (d) on reclamation treatments map.
16. Loader time estimate for placing soils on benches, area 105.3 (d) on reclamation treatments map.
17. calculation of reclamation and seeding costs

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Allred NOI LMO, Appendix 2, page 2

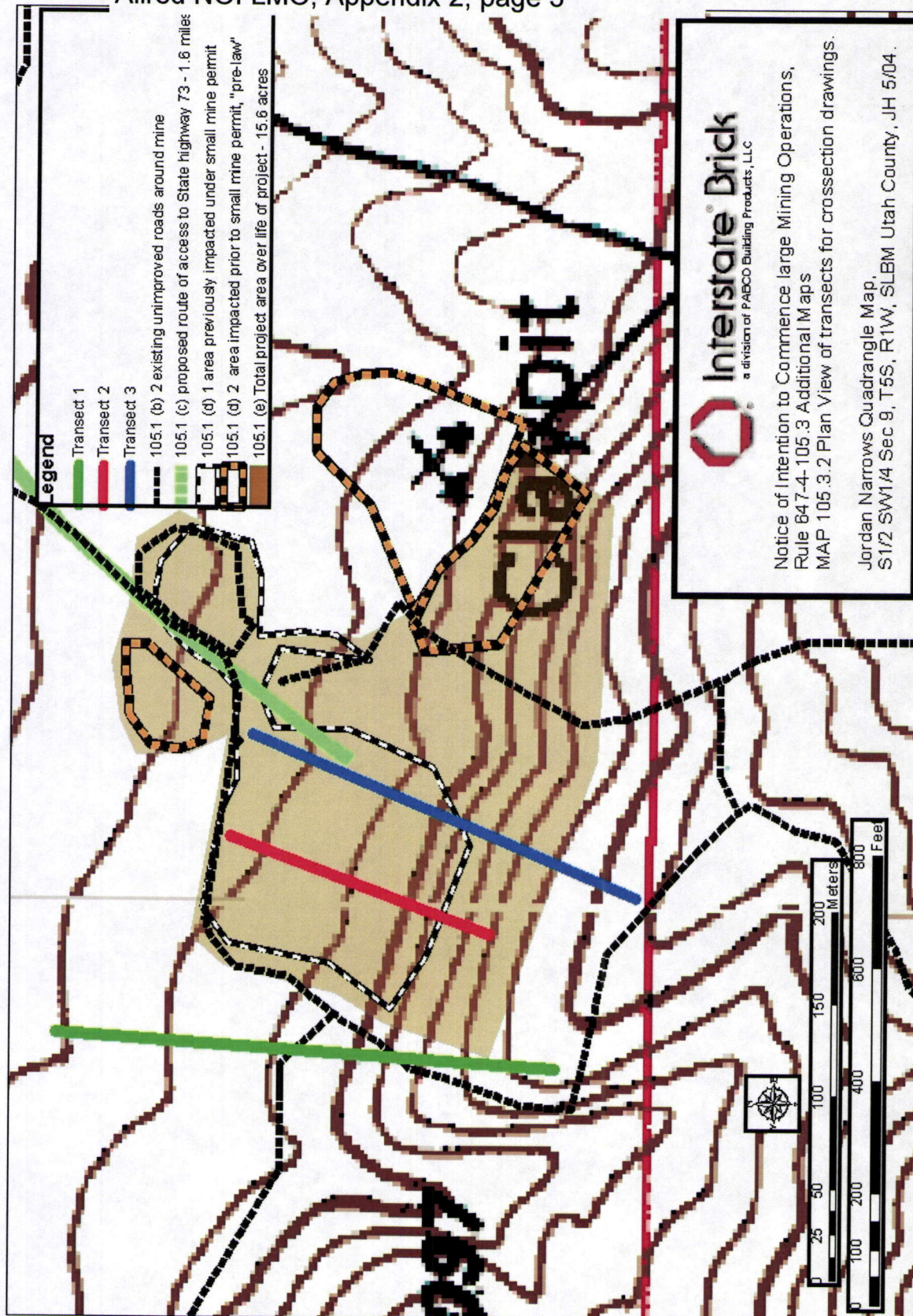


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Allred NOI LMO, Appendix 2, page 3



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transect 1

transect length (feet)

elevation (feet)

transect 1

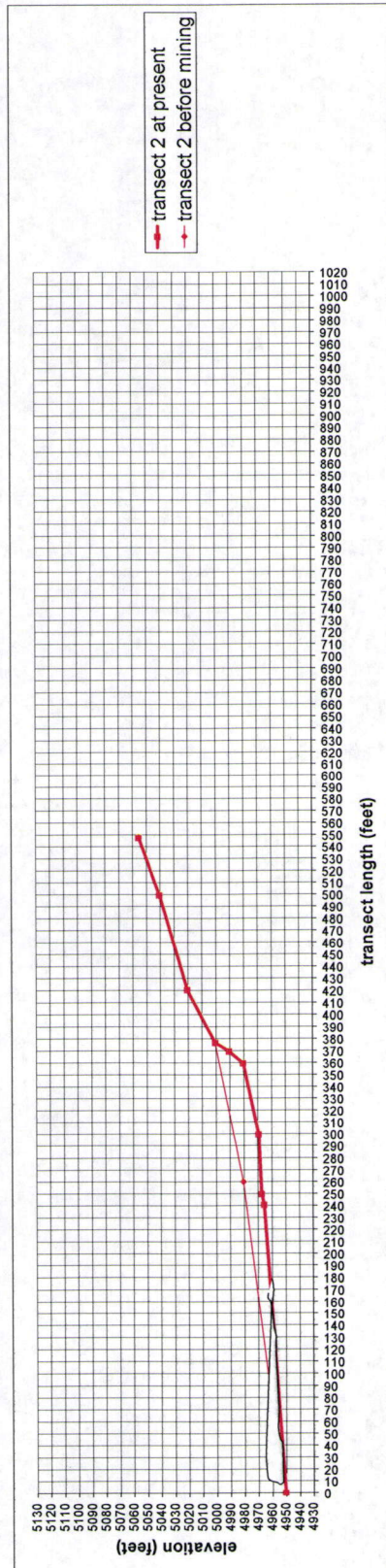
transect length (feet)	elevation (feet)
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30	1010
40	1010
50	1010
60	1010
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80	1010
90	1010
100	1010
110	1010
120	1010
130	1010
140	1010
150	1010
160	1010
170	1010
180	1010
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360	1010
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930	1010
940	1010
950	1010
960	1010
970	1010
980	1010
990	1010
1000	1010
1010	1010
1020	1010

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transect no	pt. no.	UTM North (meters)	UTM East (meters)	elevation (ft.)	$dist = \sqrt{(abs(x_2-x_1))^2 + abs(y_2-y_1)^2}$			$dist = \sqrt{(abs(x_2-x_1))^2 + abs(y_2-y_1)^2}$		
					distance between UTM points (meters)	distance between UTM points (feet)	cumulative distance between UTM points (meters)	distance between UTM points (meters)	distance between UTM points (feet)	cumulative distance between UTM points (feet)
transect 2 before mining	1	418703	4471651	4850	0	0	0	0	0	0
	2	418696	4471629	4860	23	76	23	23	76	76
	3	418677	4471575	4900	53	174	76	99	250	326
	4	418661	4471500	5000	35	115	111	134	360	494
	5	418654	4471507	5040	13	42	128	141	377	531
	6	418654	4471507	5040	24	79	152	176	500	607
	7	418649	4471493	5055	15	49	167	191	548	656
transect 2 at present	1									
	2									
	3									
	4									
	5									
	6									
	7									
	8									
	9									
	10									

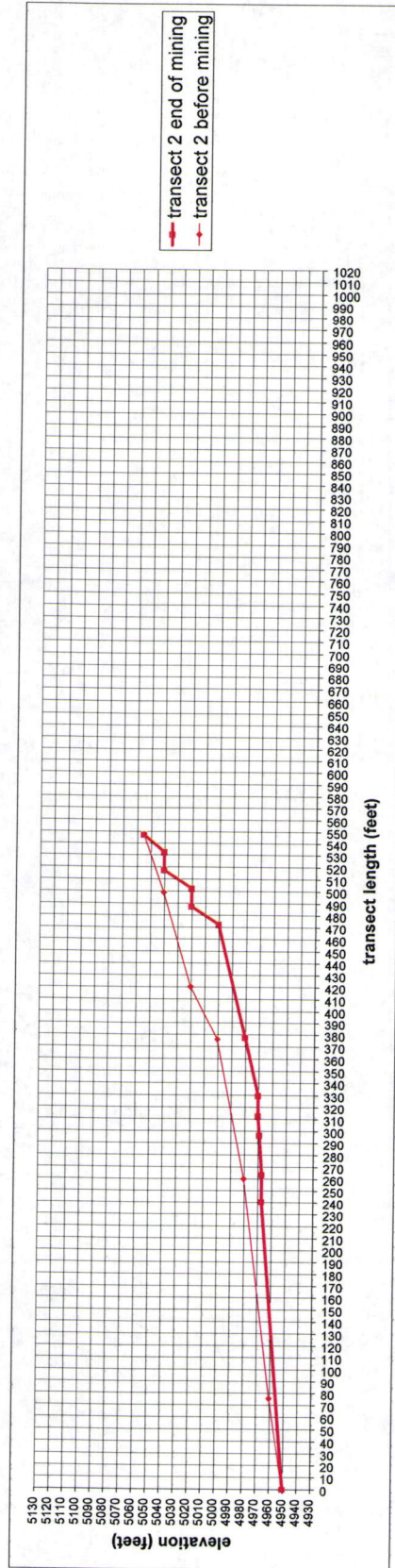


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Transect no.	pt. no.	UTM North (meters)	UTM East (meters)	Y axis on graph: elevation (ft.)	distance between UTM points (meters)	cumulative distance between UTM points	X axis on graph: adjusted length of transect (converted to feet)	Transect no.	pt. no.	UTM North (meters)	UTM East (meters)	Y axis on graph: elevation (ft.)	distance between UTM points (meters)	cumulative distance between UTM points	X axis on graph: adjusted length of transect (converted to feet)
Transect 2 before mining	1	418703	4471651	4950	0	0	0	Transect 2 end of mining	1			4950			0
	2	418696	4471629	4960	23	23	76		2			4967			241
	3	418677	4471576	4980	56	79	260		3			4987			264
	4	418667	4471542	5000	35	115	377		4			4989			297
	5	418651	4471530	5020	13	128	421		5			4970			313
	6	418651	4471520	5000	24	152	500		6			4970			330
	7	418649	4471493	5055	15	167	546		7			4980			378
									8			5000			473
									9			5020			488
									10			5040			518
									11			5040			533
									12			5055			548
									13						



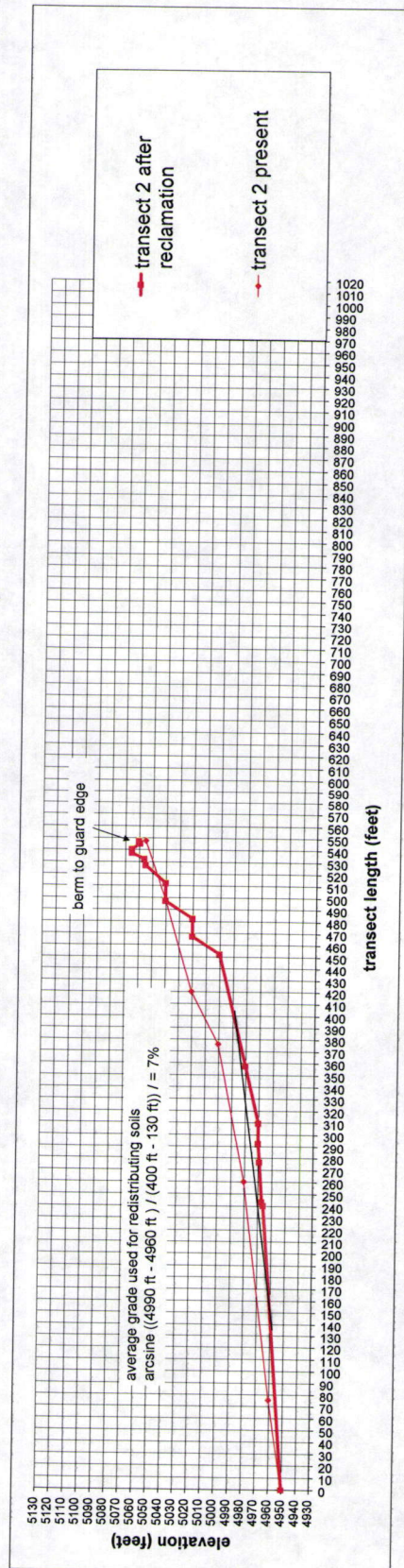
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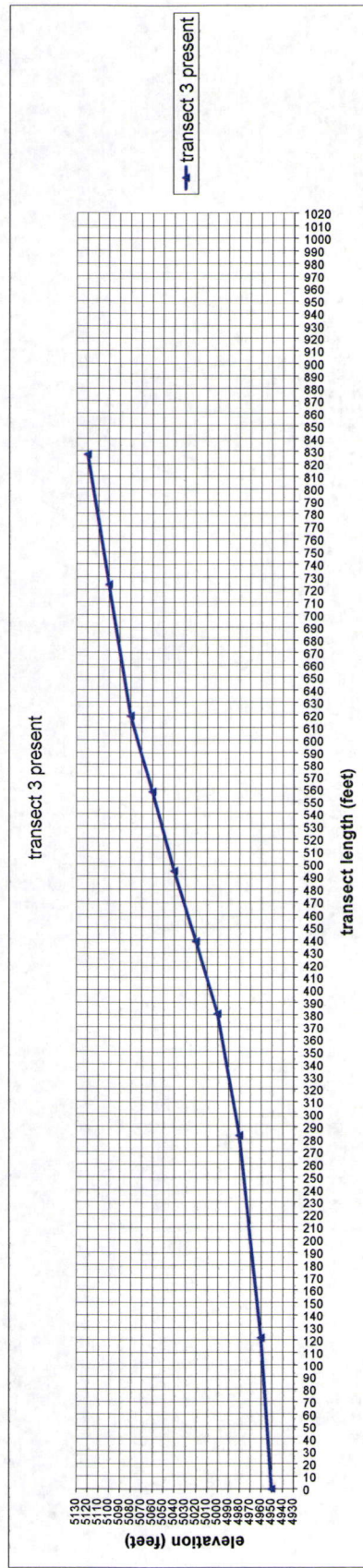
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Allred NOI LMO, Appendix 2, page 7: cross-section 2 at end of reclamation

transect no	pt. no.	UTM North (meters)	UTM East (meters)	Y axis on graph: elevation (ft.)	distance between points (meters)	cumulative distance between UTM points	X axis on graph: adjusted length of transect (converted to feet)	transect no	pt. no.	UTM North (meters)	UTM East (meters)	Y axis on graph: elevation (ft.)	distance between UTM points (meters)	cumulative distance between UTM points	X axis on graph: adjusted length of transect (converted to feet)
transect 2 present	1	418703	4471651	4950	0	0	0	transect 2 after reclamation	1	4850	4850	4850	0	0	0
	2	418896	4471629	4960	23	23	76		2	4898	4898	4898	48	23	241
	3	418677	4471576	4980	56	79	260		3	4939	4939	4939	41	64	244
	4	418607	4471542	5000	35	115	377		4	4989	4989	4989	50	114	244
	5	418651	4471530	5020	13	128	421		5	4970	4970	4970	19	133	244
	6	418651	4471530	5040	24	152	500		6	4970	4970	4970	20	153	244
	7	418649	4471683	5050	15	167	548		7	4980	4980	4980	10	163	244
transect 2 after reclamation	8	5000	5000	5000	0	0	548	transect 2 after reclamation	8	5000	5000	5000	0	0	548
	9	5000	5000	5000	0	0	548		9	5000	5000	5000	0	0	548
	10	5000	5000	5000	0	0	548		10	5000	5000	5000	0	0	548
	11	5000	5000	5000	0	0	548		11	5000	5000	5000	0	0	548
	12	5000	5000	5000	0	0	548		12	5000	5000	5000	0	0	548
	13	5000	5000	5000	0	0	548		13	5000	5000	5000	0	0	548
	14	5000	5000	5000	0	0	548		14	5000	5000	5000	0	0	548
	15	5000	5000	5000	0	0	548		15	5000	5000	5000	0	0	548
	16	5000	5000	5000	0	0	548		16	5000	5000	5000	0	0	548
	17	5000	5000	5000	0	0	548		17	5000	5000	5000	0	0	548
	18	5000	5000	5000	0	0	548		18	5000	5000	5000	0	0	548
	19	5000	5000	5000	0	0	548		19	5000	5000	5000	0	0	548
	20	5000	5000	5000	0	0	548		20	5000	5000	5000	0	0	548



transect no	pt. no.	UTM North (meters)	UTM east (meters)	Y axis on graph: elevation (ft.)	distance between UTM points (meters)	distance between UTM points (feet)	X axis on graph: adjusted cumulative length of transect (converted to feet)
transect 3 present	1	418762	4471633	4950	0	0	0
	2	418762	4471633	4950	0	0	0
	3	418771	4471559	4980	49	86	122
	4	418771	4471559	5000	30	116	238
	5	418712	4471509	5020	18	134	381
	6	418704	4471484	5040	17	151	439
	7	418687	4471476	5060	19	170	455
	8	418682	4471458	5080	18	189	558
	9	418682	4471458	5100	12	207	619
	10	418687	4471397	5120	32	252	628

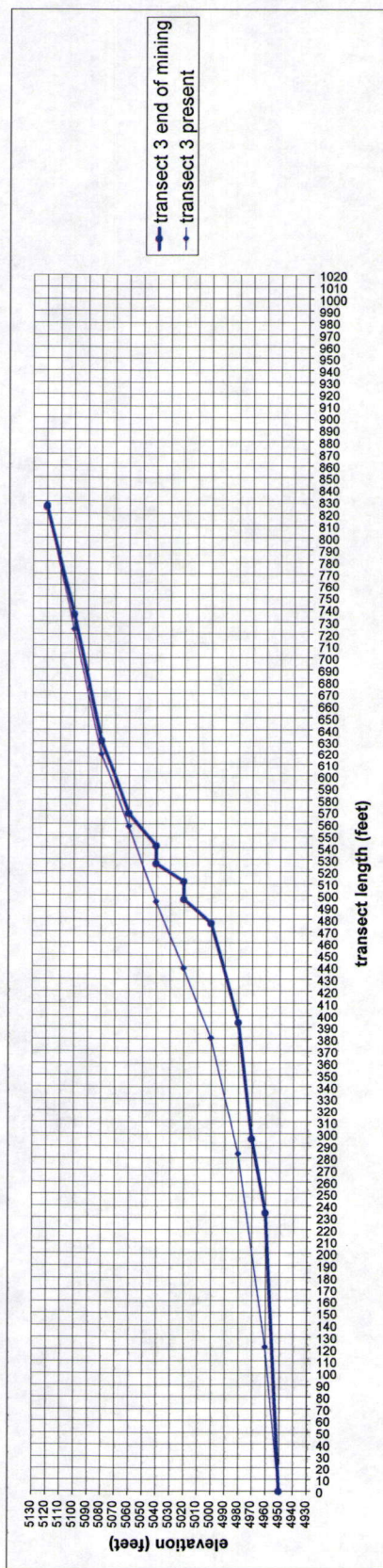


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transect no	pt. no.	UTM North (meters)	UTM east (meters)	Y axis on graphic: elevation (feet)	distance between UTM points (meters)	cumulative distance between UTM points	X axis on graphic: adjusted length of transect (feet)	transect no. 3 end of mining	pt. no.	UTM North (meters)	UTM east (meters)	Y axis on graphic: elevation (feet)	distance between UTM points (meters)	cumulative distance between UTM points	X axis on graphic: adjusted length of transect (feet)
present	1	418762	4471633	4950	0	0	0	mining	1	4950					0
	2	418747	4471599	4960	37	37	122		2	4960					234
	3	418727	4471554	4980	49	86	283		3	4970					296
	4	418712	4471509	5000	116	134	439		4	4980					394
	5	418704	4471484	5020	18	151	485		5	5000					477
	6	418704	4471484	5040	17	170	558		6	5020					497
	7	418687	4471476	5060	19	189	619		7	5040					512
	8	418682	4471458	5080	19	221	724		8	5060					542
	9	418681	4471428	5100	32	252	828		9	5080					569
	10	418687	4471387	5120					10	5100					631
									11	5120					656
									12						683
									13						698

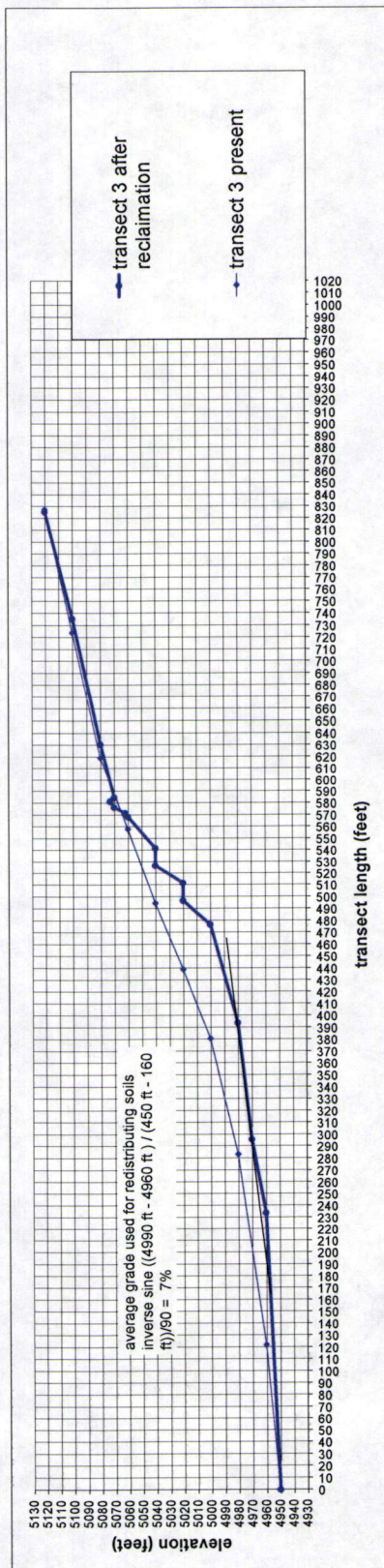


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transect no	UTM North (meters)	UTM east (meters)	Y axis on graphic: elevation (ft)	distance between UTM points (meters)	cumulative distance between UTM points	X axis on graphic: adjusted length of transect (converted to feet)	transect no	UTM North (meters)	UTM east (meters)	Y axis on graphic: elevation (ft)	distance between UTM points (meters)	cumulative distance between UTM points	X axis on graphic: adjusted length of transect (converted to feet)
1	418752	4471633	4950	0	0	0	1	4950	4550	4950	0	0	0
2	418752	4471599	4960	37	37	122	2	4960	4560	4970	234	234	234
3	418727	4471554	4980	49	86	283	3	4980	4570	4980	394	394	394
4	418717	4471526	5000	30	116	381	4	5000	4580	5000	477	477	477
5	418712	4471509	5020	18	134	439	5	5020	4590	5020	527	527	527
6	418704	4471494	5040	17	151	495	6	5040	4600	5040	572	572	572
7	418697	4471476	5060	19	170	554	7	5060	4610	5070	622	622	622
8	418691	4471459	5080	18	188	619	8	5080	4620	5090	677	677	677
9	418681	4471438	5100	32	221	724	9	5100	4630	5100	738	738	738
10	418667	4471397	5120	32	252	828	10	5120	4640	5120	808	808	808



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Allred NOI LMO, Appendix 2, page 11: Track Hoe time estimate

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For loading stockpiled soil material into a dump truck to be taken and redistributed over area shown as item 105.3 (a) 8 on Reclamation Treatments Map.

This calculation used for loading from piles 105.3 (a) 4 and 105.3 (a) 5 on Reclamation Treatments Map.

this sheet based on and References: Caterpillar Performance Handbook, Edition 33, & Handbook for Calculation of Reclamation Bond Amounts, US Department of the Interior, Office of Surface Mining, 4/5/00

from Worksheet 10, page A-12, Handbook for Calculation of Reclamation Costs, Productivity for Hydraulic Excavator Use (Backhoe or Power Shovel).

Caterpillar 345 Track Hoe

$$\text{Net Bucket Capacity} = \boxed{2.4} \text{ LCY} \times \boxed{0.9} = \boxed{2.16} \text{ LCY}$$

heaped bucket capacity
pg. 4-16, Cat handbook
used avg of 1.91 to 2.87 yd3

bucket fill factor
see page 4-132 Cat handbook
for hard, tough clay.

$$\text{Hourly Production} = \frac{\boxed{2.16} \text{ minutes}}{\text{net bucket capacity}} \times 60 \text{ min/hour} \times \boxed{0.75} = 295 \text{ LCY/hr}$$

cycle time.
See page 4-179,
Cat handbook.

efficiency factor
page 18, Surface mining handbook

$$\text{Hours Required} = \frac{\boxed{17,000} \text{ volume to be handled}}{\boxed{295} \text{ LCY/hr net hourly production}} = 57.7 \text{ hrs}$$

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Allred NOI LMO, Appendix 2, page 12: Dump Truck time estimate

For hauling stockpiled soil material and redistributing over area shown as item 105.3 (a) 8 on Reclamation Treatments Map. This calculation used for loading from piles 105.3 (a) 4 and 105.3 (a) 5 on Reclamation Treatments Map.

from Worksheet 9, page A-11, Handbook for Calculation of Reclamation Costs, Productivity and Hours Required for Truck Use. this sheet based on and References: Caterpillar Performance Handbook, Edition 33, & Handbook for Calculation of Reclamation Bond Amounts, US Department of the Interior, Office of Surface Mining, 4/5/00

Caterpillar 769C Dump Truck

No. Loader Passes / Truck = 25.1 Loose Cubic Yards, LCY = 28.6 yd3 heaped, 25.1 avg.

Truck Capacity 25.1 LCY = 12 passes (rounded to nearest whole number)

Loader bucket capacity (see 2.16 LCY) = 25.1 LCY

Net Truck Capacity = 2.16 LCY x 12 = 25.1 LCY

Loader bucket capacity (see worksheet 10) productivity for hydraulic excavator (Cat 450) = 0.33 minutes x 12 = 3.96 minutes

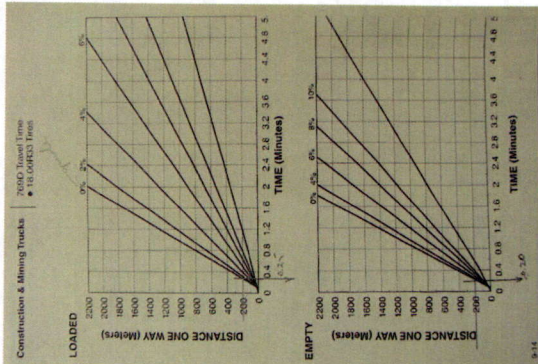
Loading Time/Truck = 0.6 minutes + 0.33 minutes = 0.93 minutes

Truck Cycle Time = 0.6 minutes + 0.33 minutes + 0.5 minutes = 1.43 minutes

Production Rate = 25.1 LCY x 2 no. trucks = 50.2 LCY / minute

Hourly Production = 6.93 LCY / minute x 60 min/hr. = 415.8 LCY / hour

Hours Required = 17,000 LCY / 415.8 LCY/hr = 40.9 hours



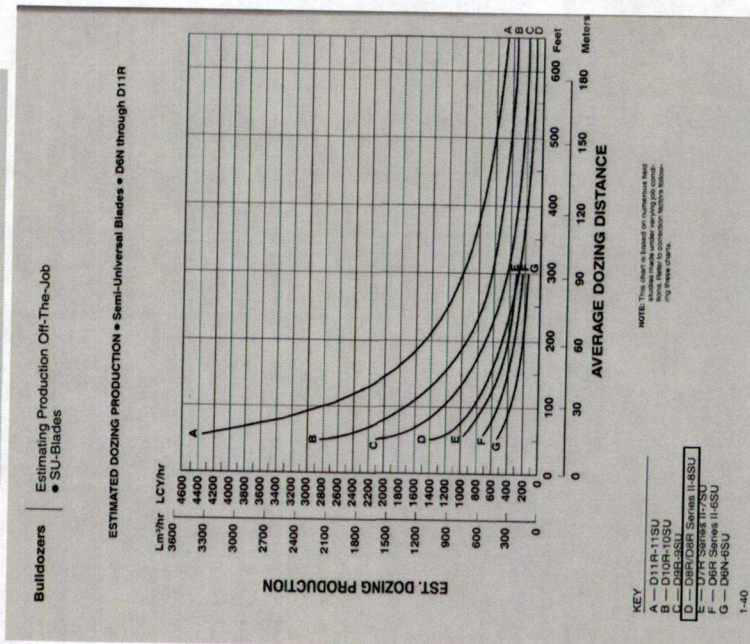
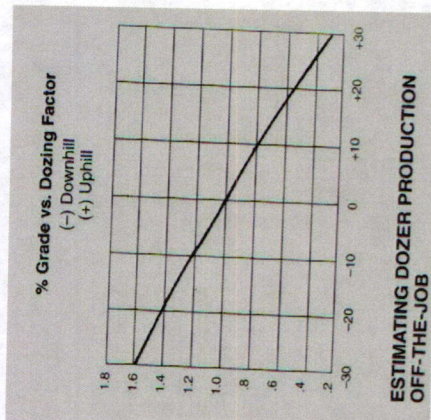
from Cat Handbook pg. 9-9

page 18, Surface mining handbook

MAR 28 2006

DIV. OIL GAS & MINING

Allred NOI LMO, Appendix 2, page 13: Dozer time estimate



For spreading redistributed soil material over area shown as item 105.3 (a) 8 on Reclamation Treatments Map. This calculation used for loading from piles 105.3 (a) 4 and 105.3 (a) 5 on Reclamation Treatments Map.

this sheet based on and References: Caterpillar Performance Handbook, Edition 33, & Handbook for Calculation of Reclamation Bond Amounts, US Department of the Interior, Office of Surface Mining, 4/5/00

from Worksheet 5, page A-7, Handbook for Calculation of Reclamation Costs, PRODUCTIVITY AND HOURS REQUIRED FOR DOZER USE.

CATERPILLAR D8R - SEMI U

$$\text{Operating Adjustment Factor} = \boxed{0.75} \times \boxed{1} \times \boxed{0.75} \times \boxed{0.9}$$

operator factor
pg. 1-42, Cat
handbook, .75
"average", .6
"poor".

material factor
pg. 1-42 Cat
handbook.
1.2 - loose
stockpile
.8 - hard to cut
frozen w/tilt cyl.
Use .7 w/o tilt.
6-8 - rock,
ripped or blasted.

efficiency factor.
Use .75 "unfavorable
or night" conditions
for crawler equip.. Pg.
18, Reclamation
Handbook.

grade factor.
From chart 1-42
Cat handbook.
At right

$$\times \boxed{1} \times \boxed{1} \times \boxed{1} \times \boxed{1} \times \boxed{1} \times \boxed{0.50625}$$

weight correction
factor

production
method / blade
factor

visibility factor
use .8 for dust,
rain, snow, fog,
or darkness

elevation factor

$$\text{Net Hourly Production} = \boxed{1,400} \text{ LCY/hr} \times \boxed{0.50625} = \boxed{708.75} \text{ LCY/hr}$$

normal hourly
production (pg 1-40,
Cat Handbook).
See right

operating adjustment
factor

$$\text{Hours Required} = \frac{\boxed{17,000} \text{ LCY}}{\boxed{709} \text{ LCY/hr}} = \boxed{24.0} \text{ hrs}$$

volume to be moved

net hourly production

Allred NOI LMO, Appendix 2, page 14: Track Hoe time estimate

Allred NOI LMO, Appendix 2, Page 14

For loading stockpiled soil material into a dump truck to be taken and redistributed over bench area shown as item 105.3 (d) 8 on Reclamation Treatments Map. This will require 1,800 CY of soil material (2 benches 20 ft wide by 800 ft. long covered with 1.5 ft of soil). This calculation used for loading from piles 105.3 (a) 4 and 105.3 (a) 5 on Reclamation Treatments Map.

this sheet based on and References: Caterpillar Performance Handbook, Edition 33, & Handbook for Calculation of Reclamation Bond Amounts, US Department of the Interior, Office of Surface Mining, 4/5/00
from Worksheet 10, page A-12, Handbook for Calculation of Reclamation Costs, Productivity for Hydraulic Excavator Use (Backhoe or Power Shovel).

Caterpillar 345 Track Hoe

$$\text{Net Bucket Capacity} = \boxed{2.4} \text{ LCY} \times \boxed{0.9} = \boxed{2.16} \text{ LCY}$$

heaped bucket capacity
pg. 4-16, Cat handbook
used avg of 1.91 to 2.87 yd³
bucket fill factor
see page 4-132 Cat handbook
for hard, tough clay.

$$\text{Hourly Production} = \frac{\boxed{2.16} \text{ minutes}}{\text{net bucket capacity}} \times \boxed{60} \text{ min/hour} \times \boxed{0.75} \text{ efficiency factor} = \boxed{295} \text{ LCY/hr}$$

page 18, Surface mining handbook

0.33
cycle time.
See page 4-179,
Cat handbook.

$$\text{Hours Required} = \frac{\boxed{1,800} \text{ volume to be handled}}{\boxed{295} \text{ LCY/hr net hourly production}} = \boxed{6.1} \text{ hrs}$$

Allred NOI LMO, Appendix 2, page 15: Dump Truck time estimate

Allred NOI LMO, Appendix 2, Page 15
For hauling soil material to redistribute over bench area shown as item 105.3 (d) on Reclamation Treatments Map. This will require 1,800 CY of soil material (2 benches 20 ft wide by 800 ft. long covered with 1.5 ft of soil, Average Haul distance 800 ft.).

from Worksheet 9, page A-11, Handbook for Calculation of Reclamation Costs, Productivity and Hours Required for Truck Use.

this sheet based on and References: Caterpillar Performance Handbook, Edition 33, & Handbook for Calculation of Reclamation Bond Amounts, US Department of the Interior, Office of Surface Mining, 4/5/00

Caterpillar 769C Dump Truck

No. Loader Passes / Truck = $\frac{\text{Truck Capacity}}{\text{Loader bucket capacity (see)}} = \frac{25.1 \text{ Loose Cubic Yards, LCY}}{2.16 \text{ LCY}} = 12 \text{ passes (rounded to nearest whole number)}$

Net Truck Capacity = $2.16 \text{ LCY} \times 12 = 25.1 \text{ LCY}$

Loader bucket capacity (see worksheet 10)
hydraulic excavator (Cat 450)

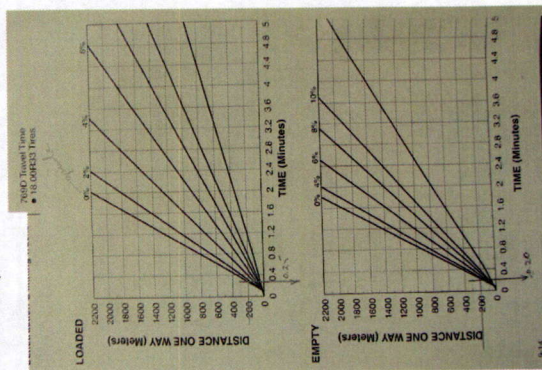
Loading Time/Truck = $\frac{\text{Loader cycle time (see worksheet 10, productivity for hydraulic excavator (Cat 450))}}{\text{Loader passes per truck}} = \frac{0.33 \text{ minutes}}{12} = 3.83 \text{ minutes}$

Truck Cycle Time = $\text{Haul time} + \text{return time}$
see pg. 9-14 Cat handbook, distance vs. time vs. grade graph for this truck
 $1.2 \text{ minutes} + 0.8 \text{ minutes} = 2 \text{ minutes}$

Production Rate = $\frac{\text{Net truck capacity}}{\text{Truck cycle time}} = \frac{25.1 \text{ LCY}}{2 \text{ minutes}} = 6.41 \text{ LCY / minute}$

Hourly Production = $\frac{\text{Production Rate}}{\text{Truck Cycle time}} \times 60 \text{ min/hr.} = \frac{6.41 \text{ LCY / minute}}{2 \text{ minutes}} \times 60 = 288 \text{ LCY / hour}$

Hours Required = $\frac{\text{Volume of material to be moved}}{\text{Hourly Production}} = \frac{1,800 \text{ LCY}}{288 \text{ LCY/hr}} = 6 \text{ hours}$



Allred NOI LMO, Appendix 2, Page 16

For spreading soil material over bench area shown as item 105.3 (d) 8 on Reclamation Treatments Map. This will require 1,800 CY of soil material (2 benches 20 ft wide by 800 ft. long covered with 1.5 ft of soil).

this sheet based on and References: Caterpillar Performance Handbook, Edition 33, & Handbook for Calculation of Reclamation Bond Amounts, US Department of the Interior, Office of Surface Mining, 4/5/00 from Worksheet 8, page A-10, Handbook for Calculation of Reclamation Costs, Productivity for Loader Use.

Caterpillar 980G Loader

Cycle Time = $\frac{0.25}{\text{min}}$ + $\frac{0.3}{\text{min}}$ + $\frac{0.6}{\text{min}}$ = 1.1 min
 haul time loaded
 pg 12-105, Cat handbook
 see graph at right
 return time empty
 pg. 12-125 Cat handbook
 see page 12-106 Cat handbook for a 7.5 CY bucket 750 CY/hr
 100 cycles/hr.

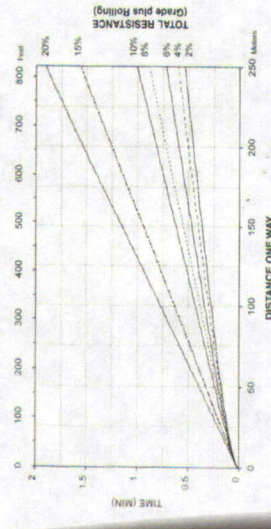
Net Bucket Capacity = $\frac{7.5}{\text{LCY}} \times \frac{1}{\text{LCY}} = 7.5 \text{ LCY}$
 heaped bucket capacity
 page 12-52, Cat
 Handbook. Rated bucket
 cap 7.5, struck 6.44
 100 - 120% for rock
 dirt mixtures

Hourly Production = $\frac{\text{net bucket capacity}}{\text{cycle time}} \times \text{efficiency factor} = 307 \text{ LCY/hr}$
 $\frac{7.5 \text{ LCY}}{1.1 \text{ LCY/hr}} \times 0.75$
 see page 18, Surface mining handbook

Hours Required = $\frac{\text{volume to be moved}}{\text{hourly production}} = 5.9 \text{ hrs.}$
 $\frac{1,800}{307 \text{ LCY/hr}}$

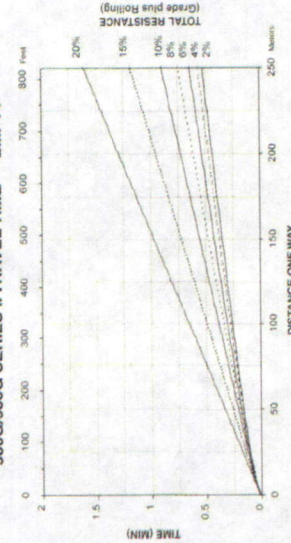
Travel Time — Loaded
 • 980G/980G Series II
 • 29.5R25 Tires

980G/980G SERIES II TRAVEL TIME — LOADED



Wheel Loaders
 Integrated Toolcarriers
 Travel Time — Empty
 • 980G/980G Series II
 • 29.5R25 Tires

980G/980G SERIES II TRAVEL TIME — EMPTY



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Allred NOI LMO, Appendix 2, page 16: Loader time estimate

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Allred NOI LMO, Appendix 2, Page 17: calculation of reclamation and seeding costs

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1. Redistributing Overburden to 1 ft. thickness.

spreading overburden 1' thick. Approximately 453,000 ft. Area, 16,778 cubic yards
using Cat 450 trackhoe to load 2 Cat 769C dumptrucks, hauling material avg. 500 ft., then using D8R dozer to spread over area-avg. push dist 50 ft.

Average grade +1.6.		Time (hrs)	Cost per hour	no of units	Cost
See Appendix 2 pages:	8. Trackhoe loading time estimate	58	\$191	1	\$11,078
	9. Dump truck loading and dumping time estimate	52	\$93	2	\$9,672
	10. Dozer spreading time estimate	24	\$98	1	\$2,352

2. Redistributing Topsoil to 1 ft. thickness.

Spreading approximately 16,778 cubic yard (use same calculations as above).

See Appendix 2 pages:	8. Trackhoe loading time estimate	58	\$191	1	\$11,078
	9. Dump truck loading and dumping time estimate	52	\$93	2	\$9,672
	10. Dozer spreading time estimate	24	\$98	1	\$2,352

3. Redistributing soils onto bench areas. 2 @ 800 ft. x 20 ft. wide. Covered by 1.5 CY of soil - 1,800 CY

See Appendix 2 pages:	11. Trackhoe loading time estimate.	6.1	\$191	1	\$1,165
	11. Track hoe placing on bench time estimate	6.1	\$191	1	\$1,165
	12. Dump truck hauling from soil piles to benches	6	\$93	2	\$1,116
	13. spreading soil along bench using loader	5.9	\$93	1	\$549

6. reshaping remaining soil pile to 3:1 redistribution of soils:
piles 105.3 (a) 6 and 105.3 (a) 7 on Reclamation Treatments map.

D8 Dozer	6	\$98	1	\$588
----------	---	------	---	-------

5. ripping, biosolid spreading, & seeding cost estimate:

Estimate based on \$300 per acre to spread biosolids @10 tons per
acre & a seeding cost of \$200 per acre. Total per acre cost: \$500

item: 105 (a) 1 on Reclamation Treatments map	\$550
Area shown in item 105.3 (b), the mine area, 14.5 acres	\$7,250
Area shown in item 105.3 (a) 1, the road, 1.1 acres	\$550

6. Miscellaneous costs (from Section IX of LMO):

General site clean up and removal of trash and debris	\$2,000
Equipment mobilization	\$3,000
Supervision during reclamation	\$10,000

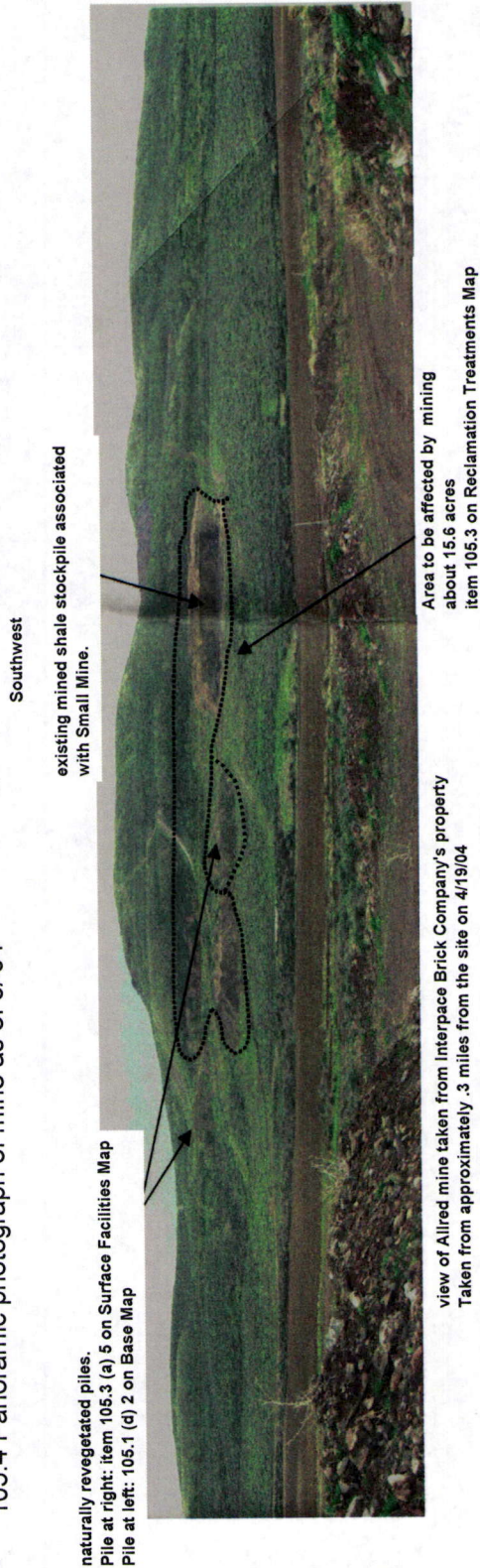
Subtotal					\$74,137
Contingency (10% of total subtotal above).					\$7,414
Annual Escalation @ 2.89% per year:	1	\$74,137	2.89%	\$2,143	
	2	\$76,279	2.89%	\$2,204	
	3	\$78,484	2.89%	\$2,268	
	4	\$80,752	2.89%	\$2,334	
	5	\$83,086	2.89%	\$2,401	
				\$11,350	\$11,350
Total Reclamation Cost Estimate:					\$92,901

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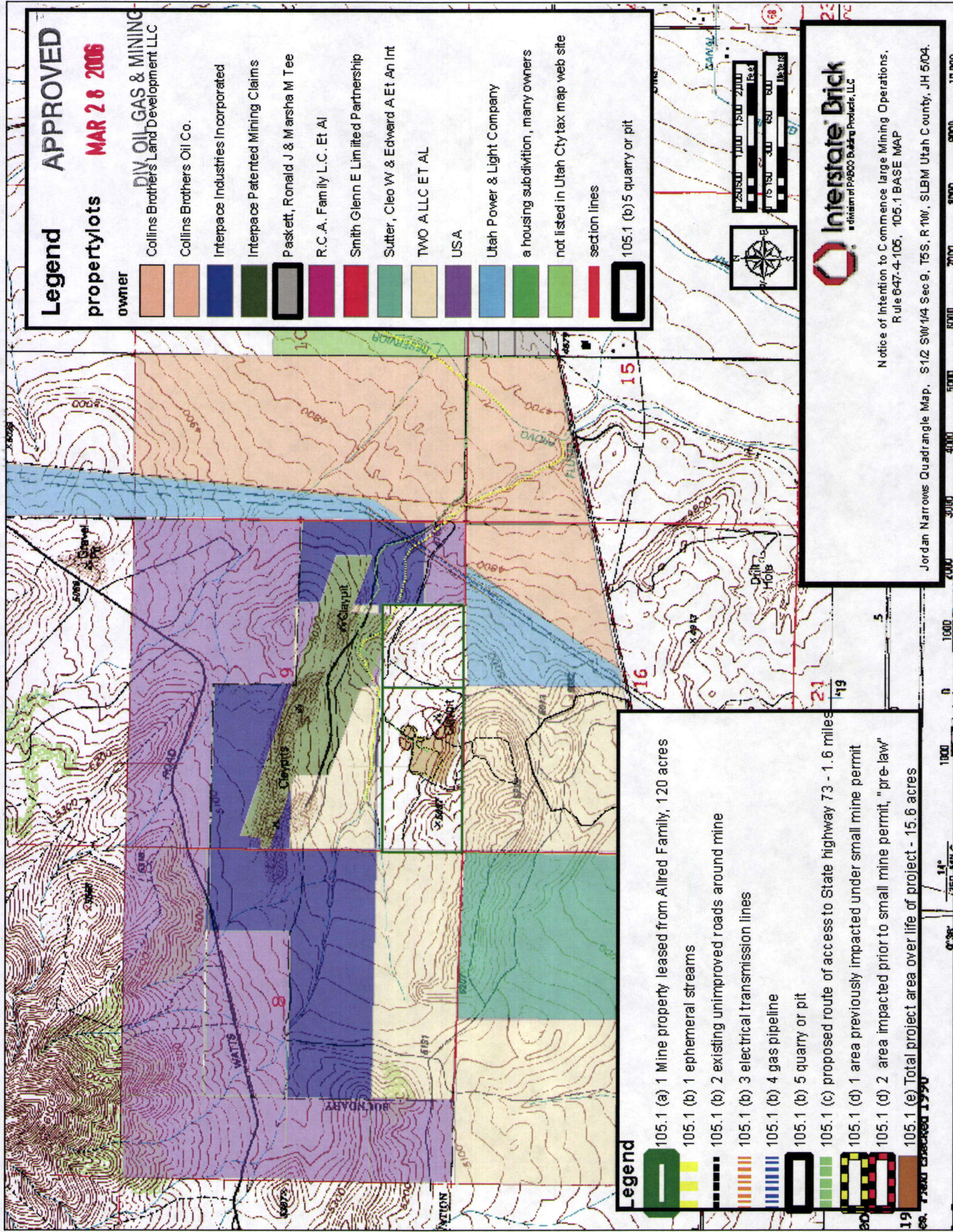
105.4 Panoramic photograph of mine as of 5/04



Current Mine Stockpile exposed shale seam
Looking in a Northwesterly direction



Looking in a Northwesterly direction
at naturally revegetated old stockpile
(item 105.1 (d) 2 on Base Map)



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Interstate Brick
a division of PESCO Building Products, LLC

Notice of Intention to Commence Large Mining Operations

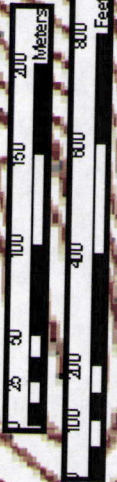
Rule 647-4, 105

105.2 SURFACE FACILITIES MAP

Jordan Narrows Quadrangle Map

S1/2 SW1/4 Sec 9, T5S, R1W, SLBM Utah County

JH 5004

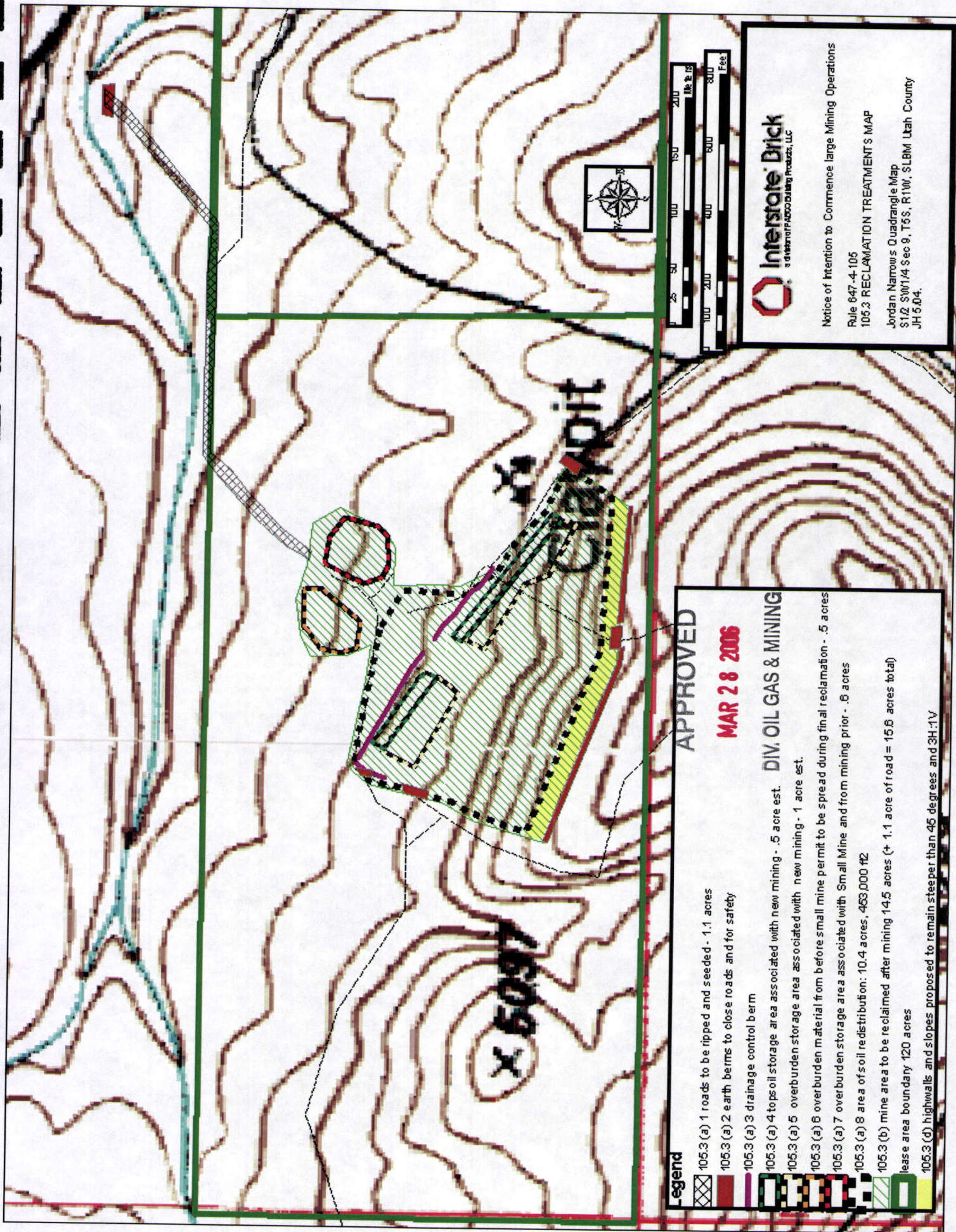


Legend

- 105.2 (a) 1 proposed access to State highway 73 - 1.6 miles
- 105.2 (a) 2 drainage control berm
- 105.2 (a) 3 topsoil storage areas associated with LMO - 1.5 acres
- 105.2 (a) 4 overburden storage area - 1.6 acres
- 105.2 (b) 1 area affected by mining - 13.6 acres
- 105.2 (b) 2 mined shale stockpile - .85 acres
- 105.2 (b) 3 area of actual mining 4.3 acres, 187,050 ft²
- lease area boundary 120 acres

X 5097

Claypit



Legend

- 105.3 (a) 1 roads to be ripped and seeded - 1.1 acres
- 105.3 (a) 2 earth berms to close roads and for safety
- 105.3 (a) 3 drainage control berm
- 105.3 (a) 4 topsoil storage area associated with new mining - .5 acre est.
- 105.3 (a) 5 overburden storage area associated with new mining - 1 acre est.
- 105.3 (a) 6 overburden material from before small mine permit to be spread during final reclamation - .5 acres
- 105.3 (a) 7 overburden storage area associated with Small Mine and from mining prior - .5 acres
- 105.3 (a) 8 area of soil redistribution: 10.4 acres, 463,000 ft²
- 105.3 (b) mine area to be reclaimed after mining 14.5 acres (+/- 1.1 acre of road = 15.6 acres total)
- lease area boundary 120 acres
- 105.3 (d) highwalls and slopes proposed to remain steeper than 45 degrees and 3H:1V

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Interstate Brick
a division of Hacco Building Products, LLC

Notice of Intention to Commence large Mining Operations
Rule 647-4-105
105.3 RECLAMATION TREATMENT'S MAP
Jordan Narrows Quadrangle Map
S1/2 SW1/4 Sec 9, T5S, R1W, SLBM Utah County
JH 5.04.



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Legend

propertylots

owner

DIV. OIL GAS & MINING

Collins Brothers Land Development LLC

Collins Brothers Oil Co.

Interpace Industries Incorporated

Interpace Patented Mining Claims

Paskett, Ronald J & Marsha M Tee

R.C.A. Family L.C. Et Al

Smith Glenn E Limited Partnership

Sutter, Cleo W & Edward A Et An Int

TWO ALLC ET AL

USA

Utah Power & Light Company

a housing subdivision, many owners

not listed in Utah Citytax map web site

section lines

105.1 (b) 5 quarry or pit

Legend

propertylots

owner

DIV. OIL GAS & MINING

Collins Brothers Land Development LLC

Collins Brothers Oil Co.

Interpace Industries Incorporated

Interpace Patented Mining Claims

Paskett, Ronald J & Marsha M Tee

R.C.A. Family L.C. Et Al

Smith Glenn E Limited Partnership

Sutter, Cleo W & Edward A Et An Int

TWO ALLC ET AL

USA

Utah Power & Light Company

a housing subdivision, many owners

not listed in Utah Citytax map web site

section lines

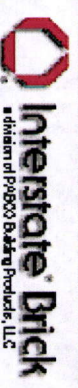
105.1 (b) 5 quarry or pit

Legend

- 105.1 (b) 1 ephemeral streams
- 105.1 (b) 2 existing unimproved roads around mine
- 105.1 (b) 3 electrical transmission lines
- 105.1 (b) 4 gas pipeline
- 105.1 (b) 5 quarry or pit
- 105.1 (c) proposed route of access to State highway 73 - 1.6 miles
- 105.1 (d) 1 area previously impacted under small mine permit
- 105.1 (d) 2 area impacted prior to small mine permit, "pre-law"
- 105.1 (e) Total project area over life of project - 15.6 acres

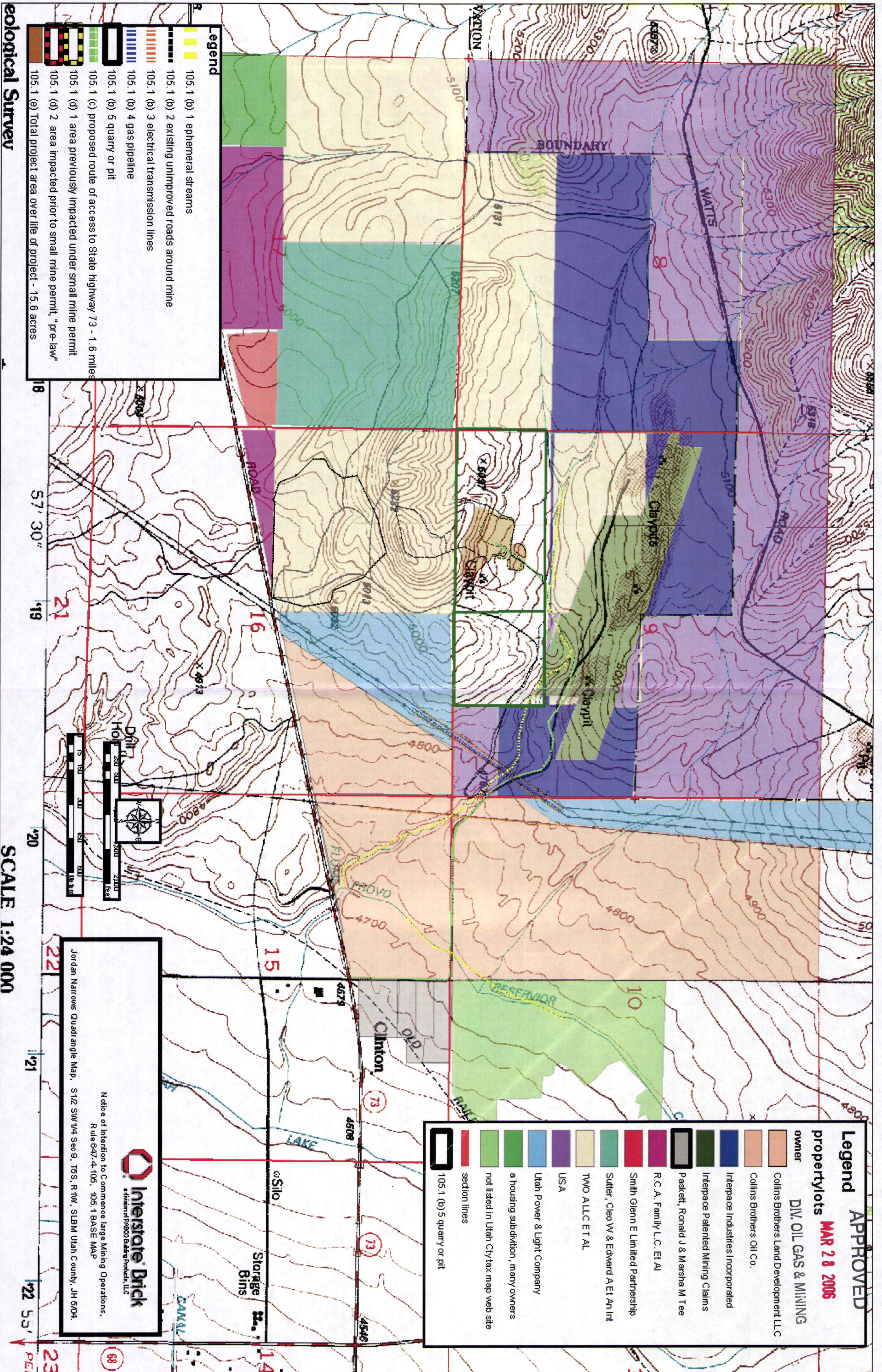
ecological Survey

SCALE 1:24 000



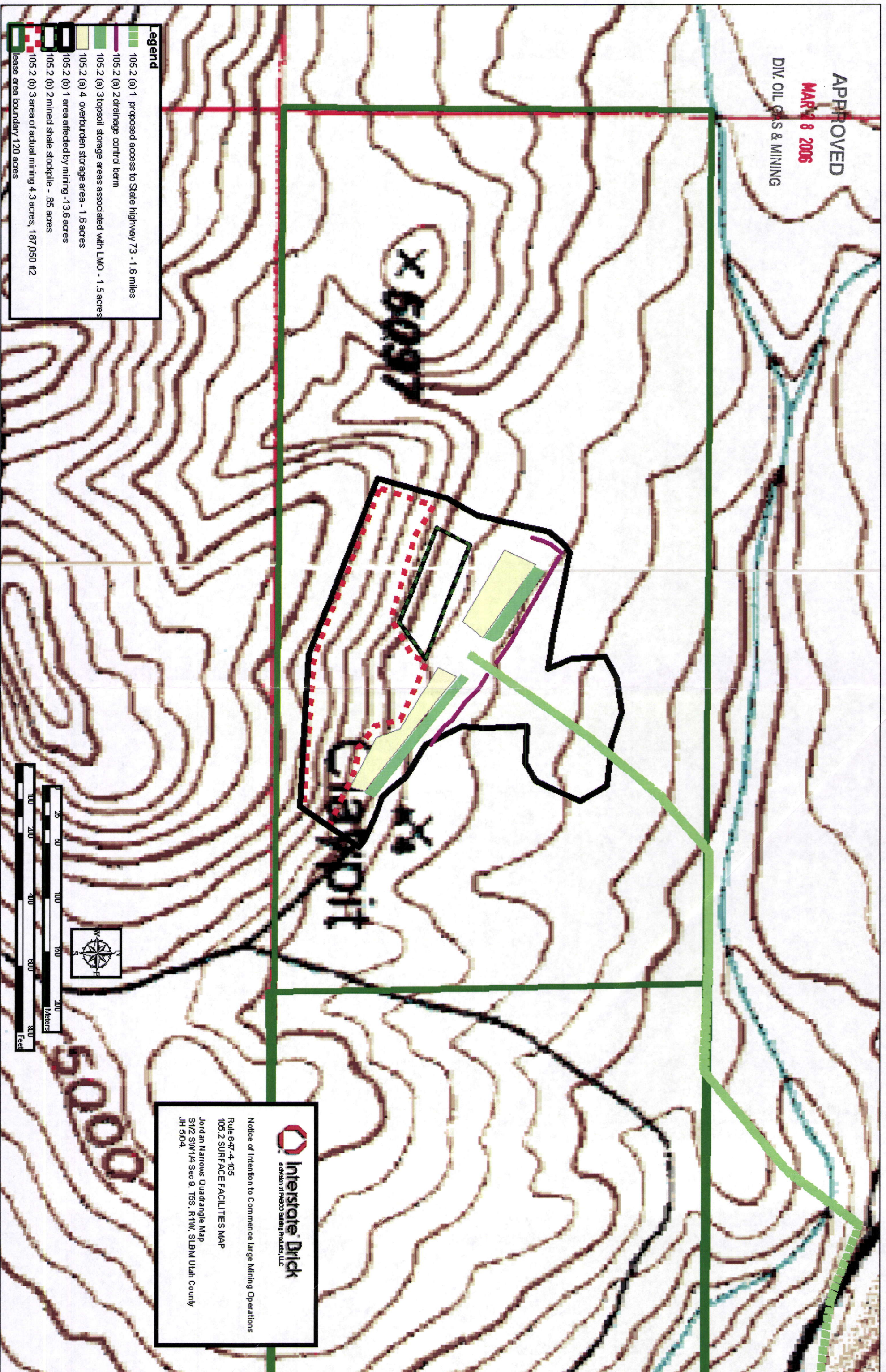
Notice of intention to Commence large Mining Operations,
Rule 647-4-105, 105.1 BASE MAP

Jordan Narrows Quadrangle Map, S1/2 SW1/4 Sec 9, T5S, R10W, SLBM Utah County, JH 5004.



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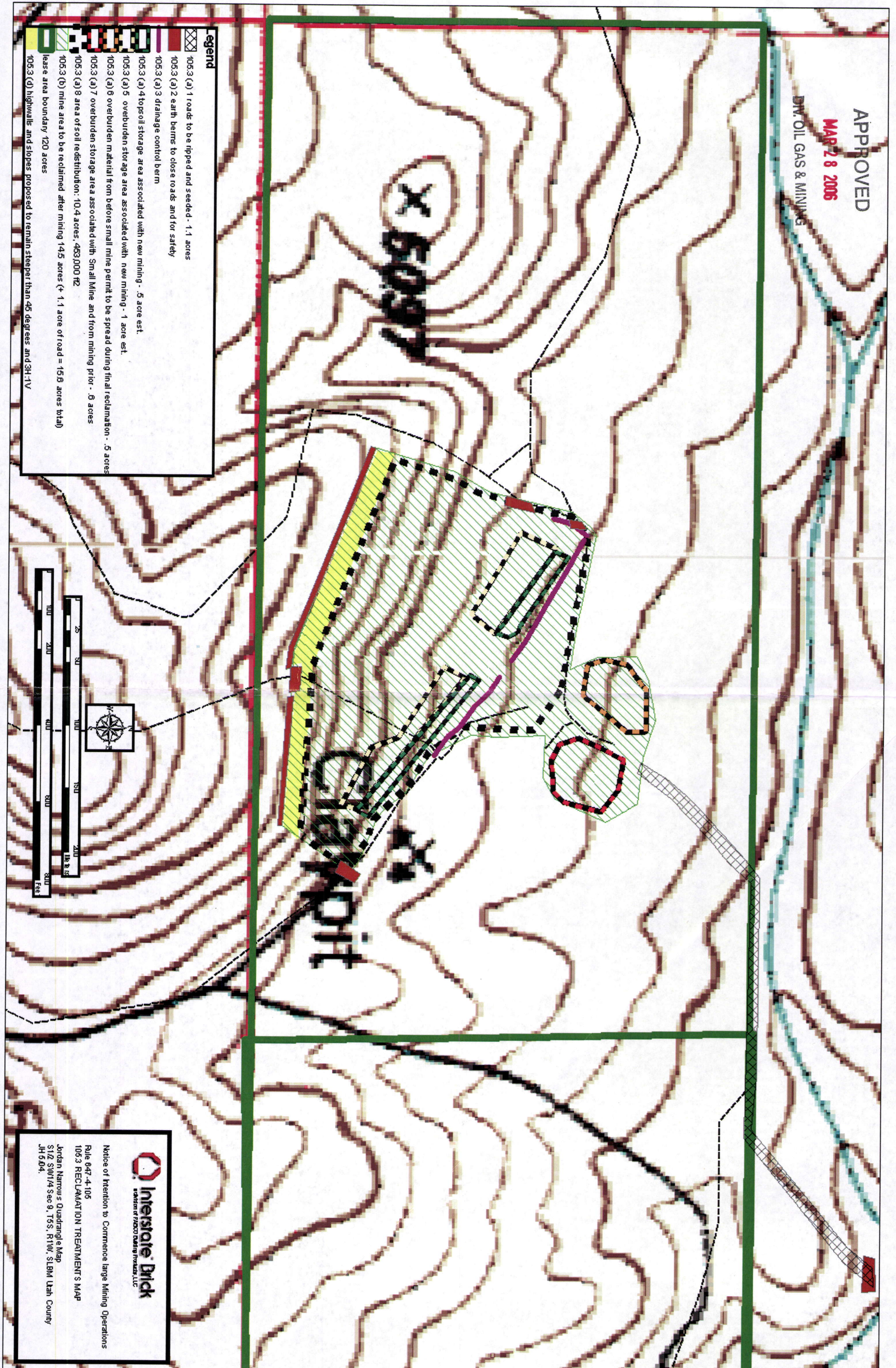
Interstate® Brick
a division of P&BOD Building Products, LLC

Notice of Intention to Commence Large Mining Operations
Rule 647-4-105
105.2 SURFACE FACILITIES MAP
Jordan Narrows Quadrangle Map
S4/2 SW1/4 Sec 9, T5S, R10W, SLBM Utah County
JH 5604.

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Legend

- 1005.3 (a) 1 roads to be ripped and seeded - 1.1 acres
- 1005.3 (a) 2 earth berms to close roads and for safety
- 1005.3 (a) 3 drainage control berm
- 1005.3 (a) 4 topsoil storage area associated with new mining - .5 acre est.
- 1005.3 (a) 5 overburden storage area associated with new mining - 1 acre est.
- 1005.3 (a) 6 overburden storage area associated with Small Mine and from mining prior - .8 acres
- 1005.3 (a) 7 overburden storage area associated with 5mll Mine and from mining prior - .5 acres
- 1005.3 (a) 8 area of soil redistribution: 10.4 acres, 483,000 t2
- 1005.3 (b) mine area to be reclaimed after mining 14.5 acres (+ 1.1 acre of road = 15.6 acres total)
- lease area boundary 120 acres
- 1005.3 (d) highwalls and slopes proposed to remain steeper than 45 degrees and 3H:1V



Interstate Brick
a division of PACCAR Quarry Products, LLC

Notice of Intention to Commence large Mining Operations
Rule 647.4-106
1005.3 RECLAMATION TREATMENTS MAP
Jordan Narrows Quadrangle Map
S1/2 S100/14 Sec 9, T5S, R11W, SLBM, Utah County
JH 5.0-4.